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## COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS

### PLANS OF PROPOSED PROJECT BRIDGE REPAIR AND DECK REPLACEMENT FOR THREE BRIDGES ON US 31 E FEGR98-11 BRIDGE GROUP 1 (1998)



#### BARREN RIVER LAKE BRIDGE

ALLEN COUNTY FE02-002-031E-B00007 (MP019.112)

#### PETER CREEK BRIDGE

BARREN COUNTY FE02-005-031E-B00027 (MP002.080)

#### SKAGGS CREEK BRIDGE

BARREN COUNTY FE02-005-031E-B00025 (MP006.667)

### LAYOUT MAP

#### STANDARD DRAWINGS

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|------------|---|
| TSC-260-10 | MISCELLANEOUS TRAFFIC CONTROL DEVICES       |
| TSC-261-07 | MISCELLANEOUS TRAFFIC CONTROL DEVICES       |
| TSC-265    | POST SPLICING DETAIL                        |
| RBM-100-03 | CONCRETE BARRIER TYPE J (TEMPORARY)         |
| RBM-020-06 | DELINEATORS FOR CONCRETE MEDIAN BARRIER     |
| RBC-002-04 | GUARDRAIL CONNECTOR TO BRIDGE END, TYPE "B" |

#### REFERENCES

Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, Current Edition

Kentucky Department of Highways Standard Drawings, Current Edition

TIWA Manual on Uniform Traffic Control Devices

#### SPECIAL NOTES

For Structural Adhesives with extended contact time.

For Clearing the Bridge Site

Special Note for Edge Key

SHEET 1

#### COMMONWEALTH OF KENTUCKY DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF

ALLEN & BARREN

THREE BRIDGES ON US 31 E

DRAWING NO. 24412

PREPARED & SUBMITTED BY:

**BRW HAZELET & ERDAL**  
A BRW COMPANY  
LOUISVILLE, KY.

By *Dennis M. Brown*

Date *May 8, 1998*

File No. 31046-013



PLAN  
APPROVED \_\_\_\_\_ BY \_\_\_\_\_  
DIRECTOR OF OPERATIONS

PLAN  
APPROVED \_\_\_\_\_ BY \_\_\_\_\_  
STATE HIGHWAY ENGINEER

UPDATE DATE  
LETTING DATE

DESIGN PREPARED AND SUBMITTED BY  
BRW HAZELT & EDELL  
ENGINEERS

DATE  
2-29-99  
BY  
MJB  
CHECKED BY  
MJB  
DATE  
5-99  
BY  
MJB  
APPROVED BY  
MJB  
DATE  
5-99  
BY  
MJB

**SPECIFICATIONS:** All references to the standard Specifications are to the 1998 edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO Standard Specifications for Highway Bridges, with interims.

**LIVE LOAD:** See original contract plans for design loads. The new concrete deck is designed for HS20 live load.

**DESIGN METHOD:** The new reinforced concrete slab is designed by the load factor method as specified in the current AASHTO Specifications.

**CONCRETE:** Unless otherwise noted, Class "AA" concrete is to be used throughout including the superstructure and the substructure retrofit.

**REINFORCEMENT:** Dimensions shown from the face of concrete to bars are clear distances unless otherwise shown. Spacing of bars is from center to center of bars.

**EXISTING STEEL REINFORCEMENT:** The cost of cutting, bending and cleaning existing reinforcing bars shall be incidental to the appropriate items.

**MECHANICAL COUPLERS:** Mechanical couplers must be approved by the Division of Materials and shall meet the requirements of Section 602 of the Standard Specifications. Couplers may be the Lenton Rebar Splice manufactured by Erico Concrete Construction Products, 34600 Solon Road, Solon, Ohio 44139; or other splice systems intended for joining bars in tension.

**BONDING FRESH CONCRETE TO EXISTING CONCRETE:** Fresh concrete shall be bonded to existing concrete using a two component epoxy resin system conforming to Section 833 of the Specifications. The existing concrete shall be sand blasted prior to receiving the epoxy coating. This bonding system is not required for the horizontal joints between the barrier and the slab. The cost of this work, including all labor, tools and materials, shall be considered incidental to the specific bid items for which this work applies.

**REMOVE STEEL:** All existing steel that is removed and not reused in the completed structure shall become the property of the Contractor and shall be removed from the bridge site.

**BEVELED EDGES:** All exposed edges shall be beveled 7/8 inch unless otherwise shown.

**BILL OF INCIDENTAL MATERIAL:** The Contractor is responsible for furnishing enough material to complete the work in accordance with the plans and Specifications. The cost of these items shall be included in the unit price bid for Class "AA" concrete.

**MILL TEST REPORTS:** Notarized test reports shall be furnished in triplicate to the Department showing that all the materials used for these repairs conform to the requirements of the Specifications.

**CONSTRUCTION IDENTIFICATION:** The names of the prime Contractor and the sub-contractor shall be imprinted in the concrete with 1 inch letters at a location designated by the Engineer. The Contractor shall furnish all plans, equipment and labor necessary to do the work for which no direct payment will be made.

**DECK DRAINS:** Foundry note - All drains shall be gray iron castings, AASHTO M105, current edition, Class 30A. Foundries shall cast at least two test bars from each day's production. These test bars shall be tested either by the Division of Materials or by the foundry's quality control unit who shall furnish actual test results for each date of manufacture or lot number. The surfaces of the drains not in contact with concrete shall be painted inside and out.

The drain pipe shall be 6 inch round standard weight in accordance with ASTM A53, A500, or A501. Pipe, fittings, hangers, and connections shall be included in the lump sum bid for Bridge Drainage Systems. All drain pipe, supporting clamps, and hardware are to be galvanized.

**CLEANING TOPS OF BEAMS:** The tops of all existing steel girders, and other steel to be in contact with new concrete, shall be hand cleaned of all rust and other foreign matter before pouring the concrete floor. The cost of material and labor shall be incidental to the lump sum bid for Class "AA" concrete.

**HIGH STRENGTH BOLT CONNECTIONS:** Unless otherwise provided on the plans, all new bolts shall be 7/8" diameter high strength bolts. Open holes shall be 15/16" diameter. Tightening shall be in accordance with Section 607.08 of the Standard Specifications. All reaming of existing holes shall be considered incidental to the appropriate work item. Bolts, nuts, and washers shall be made in U.S.A.

**EPOXY COATED REINFORCING STEEL:** All reinforcing bars designated by suffix (E) in the plans shall be epoxy coated in accordance with Section 811.10 of the Standard Specifications.

**ANCHOR BOLT HOLES:** See Article 607.19 of the Standard Specification.

**PAYMENT FOR SHEAR CONNECTORS:** The "Lump Sum Bid" for shear connectors shall be full payment for all shear connectors, paint, welding and welding material, and materials necessary to field weld or shop weld the shear connectors in place according to the plans and specifications. The contractor shall apply one coat of inorganic zinc rich primer to all new and existing shear connectors, as directed by the Engineer.

**STUD WELDING:** Studs shall be welded in accordance with AWS Specifications.

**DIMENSIONS:** Dimensions shown on these plans are taken from the "As-Built" construction contract drawings. The Contractor shall verify elevations, and dimensions, including thicknesses of parts, with field measurements prior to ordering materials or fabricating steelwork. All plan dimensions are for a normal temperature of 60° F. Layout dimensions are horizontal measurements.

**BRIDGE PLANS:** A copy of the "As-Built" construction contract plans will be made available to the successful bidder upon written request. Barran River Bridge (KTC Dwg. No. 17561), Peter Creek Bridge (KTC Dwg. No. 17554), Skaggs Creek Bridge (KTC Dwg. No. 17555).

**PROHIBITED FIELD WELDING:** Except as shown on the plans, no welding of any nature shall be performed on the load carrying members of the bridge without written consent of the Director, Division of Bridges, or an authorized representative, and only in the manner and at the locations designated in the authorization.

**DAMAGE TO THE STRUCTURE:** The Contractor shall bear full responsibility and expense for any and all damage to the structure, should such damage result from the Contractor's actions.

**MAINTAINING TRAFFIC:** Traffic shall be maintained at all times in accordance with the plans for Maintenance of Traffic. The lump sum bid for Maintain and Control Traffic shall include all luminaires, light poles, water-filled barriers, and incidentals to complete the work.

**ON SITE INSPECTION:** Each Contractor submitting a bid for this work shall make a thorough inspection of the bridge and the work site prior to submitting a bid and shall be thoroughly familiarized with existing conditions so that work can be expeditiously performed after a contract is awarded. A suitable method of performing the work described herein should be investigated. Submission of a bid will be considered evidence of this inspection having been made. Any claims from site conditions will not be honored by the Department of Highways.

**CONCRETE REMOVAL:** The Contractor shall remove concrete with a method that will not damage existing reinforcement, shear connectors, or structural steel that is to remain in the structure. All removal shall be to not saw out lines and feather edges will not be permitted. Reinforcing bars which are shown on the plans as remaining and which are damaged by the Contractor's operations shall be replaced with new epoxy coated bars of the same size and shape, as directed by the Engineer. Shear connectors which are damaged by the Contractor's operations shall be replaced with new shear stud connectors, regardless of type damaged, at the spacing shown on the "As-Built" contract drawings. No compensation will be made for the replacement shear connectors or epoxy coated rebars.

**CLEANING AND PAINTING:** All new structural steel shall be blast cleaned in the shop to a new white condition and shop painted with one coat of inorganic zinc rich primer in accordance with Section 607 of the Standard Specifications. Existing steel areas of the bridge to be in contact with the new steel shall be cleaned of all dirt, rust and foreign matter using hand cleaning methods before installing the new steel. Hand methods for field cleaning shall consist of scraping and wire brushing. No blast cleaning will be allowed on the bridge. The Contractor shall take the appropriate steps in order to contain the paint debris that results from the hand cleaning. This work is considered incidental to the lump sum price bid for Structural Steel.

**MATERIALS DESIGN SPECIFICATIONS:**  
For Class "AA" Reinforced Concrete (New)  
f'c = 4000 PSI  
For Steel Reinforcement  
Fy = 60000 PSI

For Structural Steel (New)  
Fy = 36000 PSI for Grade 36

For Structural Steel (Existing)  
Fy = 33000 PSI for ASTM A7 and A313  
Fy = 36000 PSI for ASTM A36

**MATERIALS:** ASTM or AASHTO Specifications, current edition, as designated below shall govern the materials furnished.

| Structural Steel#                               | A.S.T.M.<br>A709 (Gr. 36) | AASHTO<br>M270 (Gr. 36) |
|---|---------------------------|-------------------------|
|   |                           |                         |
| High Strength Bolts for Structural Steel Joints |                           | M164                    |
| Carbon and Alloy Steel Nuts                     |                           | M291                    |
| Hardened Steel Washers                          |                           | M293                    |
| Gray Iron Castings, Class 30A                   |                           | M105                    |
| Stud Shear Connectors, UNS G 1015               |                           | M169                    |
| Sheet Lead and Pig Lead                         | B29                       |                         |
| Pipe, Steel, Black and Hot-Dipped, Zinc Coated  |                           |                         |
| welded and Seamless                             | A53                       |                         |
| Cold-Formed Welded and Seamless Carbon Steel    |                           |                         |
| Structural Tubing in Rounds and Shapes          | A500                      |                         |
| Hot-Formed Welded and Seamless Carbon Steel     |                           |                         |
| Structural Tubing                               | A501                      |                         |
| Deformed and Plain Billet-Steel Bars for        |                           | M31                     |
| Concrete Reinforcement (Grade 60)               |                           |                         |

\* All structural steel shall be A709 (Gr. 36) unless otherwise noted.

BRIDGE REPAIR & DECK REPLACEMENT SHEET 2

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF

**ALLEN & BARREN**  
US 31 E

|         |                          |                         |
|---------|--------------------------|-------------------------|
| STATION | ROAD PROJECT NO.         |                         |
|         | CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. |
|         |                          | DRAWING NO.<br>24412    |

GENERAL NOTES





UPDATE DATE  
LETTING DATE

CLASS PREPARED AND SUBMITTED BY  
BRW HAZELT & EDAL  
DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

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DATE

DATE

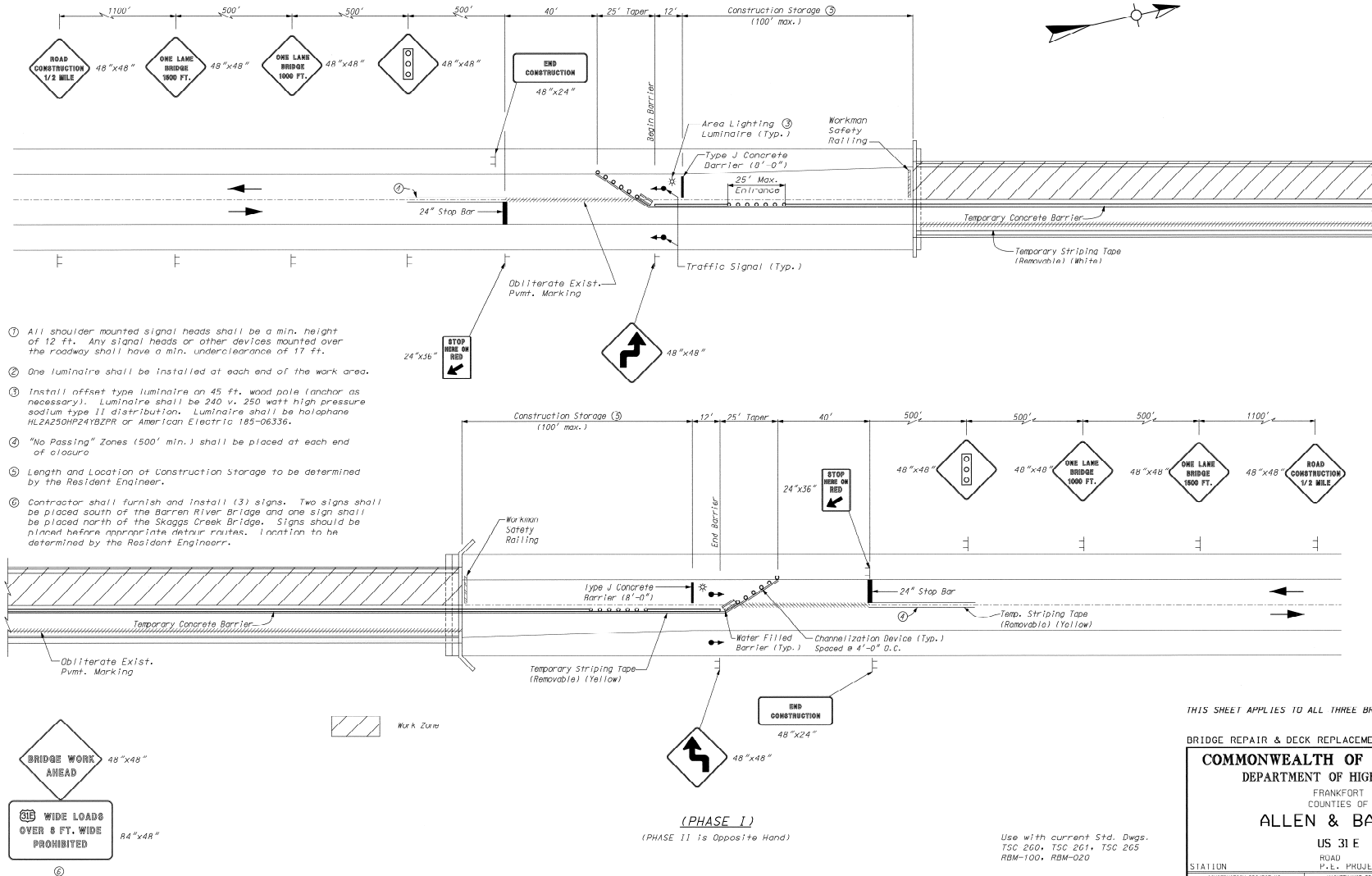
DATE

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DATE



- ① All shoulder mounted signal heads shall be a min. height of 12 ft. Any signal heads or other devices mounted over the roadway shall have a min. underclearance of 17 ft.
- ② One luminaire shall be installed at each end of the work area.
- ③ Install offset type luminaire on 45 ft. wood pole (anchor as necessary). Luminaire shall be 240 v. 250 watt high pressure sodium type II distribution. Luminaire shall be holophone HL2A250HP24YBZPR or American Electric 185-06336.
- ④ "No Passing" Zones (500' min.) shall be placed at each end of closure.
- ⑤ Length and Location of Construction Storage to be determined by the Resident Engineer.
- ⑥ Contractor shall furnish and install (3) signs. Two signs shall be placed south of the Barren River Bridge and one sign shall be placed north of the Skaggs Creek Bridge. Signs should be placed before appropriate detour routes. Location to be determined by the Resident Engineer.

THIS SHEET APPLIES TO ALL THREE BRIDGE SITES

BRIDGE REPAIR & DECK REPLACEMENT SHEET 4

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS  
FRANKFORT  
COUNTIES OF  
**ALLEN & BARREN**

US 31 E

|                          |                         |             |             |
|--------------------------|-------------------------|-------------|-------------|
| STATION                  | ROAD                    | PROJECT NO. | DRAWING NO. |
| CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. |             | 24412       |

MAINTENANCE OF TRAFFIC

Use with current Std. Dwg.  
TSC 260, TSC 261, TSC 265  
RBM-100, RBM-020

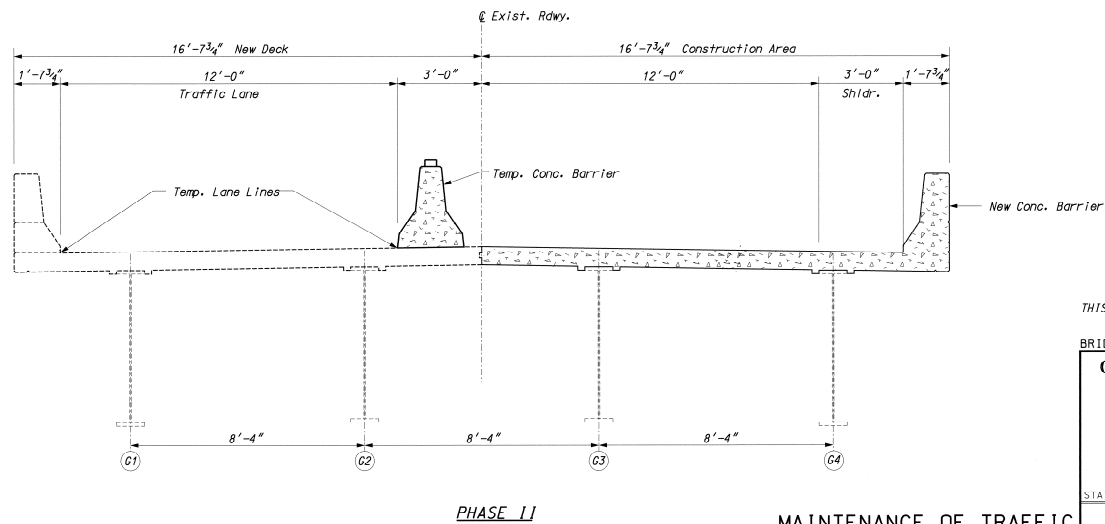
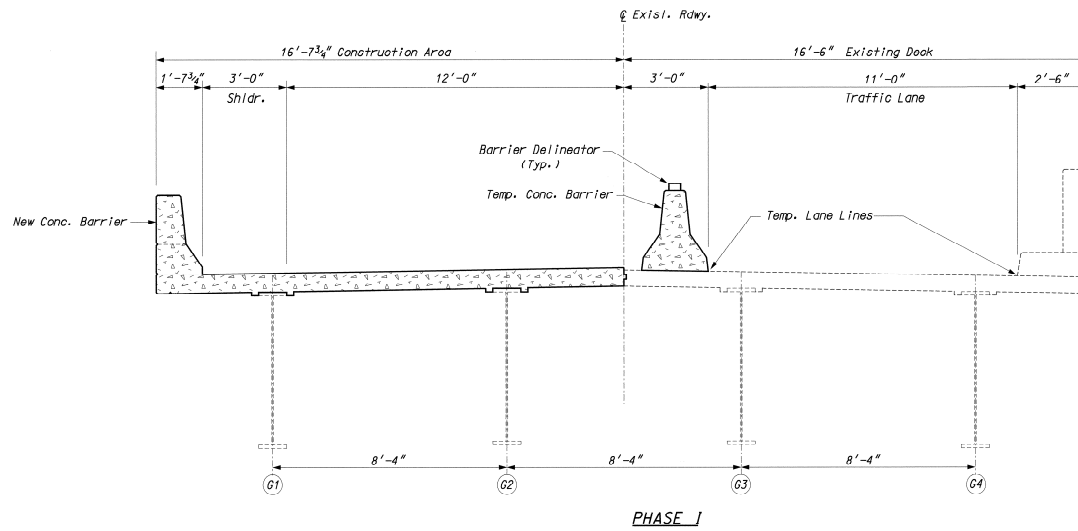
(PHASE I)  
(PHASE II is Opposite Hand)

UPDATE DATE  
LETTING DATE

CLASS PREPARED AND SUBMITTED BY  
BRW HAZELET & EQUAL  
CONSULTANTS

DATE  
REVISED  
BY  
DATE  
REVISED  
BY

PROJECT NO.  
N/B  
DATE  
2-99  
M/B  
DATE  
5-99  
M/B



THIS SHEET APPLIES TO ALL THREE BRIDGE SITES.

BRIDGE REPAIR & DECK REPLACEMENT SHEET 5

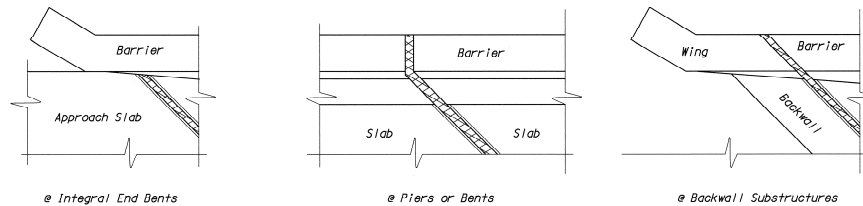
**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS  
FRANKFORT  
COUNTIES OF  
**ALLEN & BARREN**  
US 31 E

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|--------------------------|-------------------------|------------------|-------------|
| STATION                  | ROAD                    | P.E. PROJECT NO. | DRAWING NO. |
| CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. |                  | 24412       |

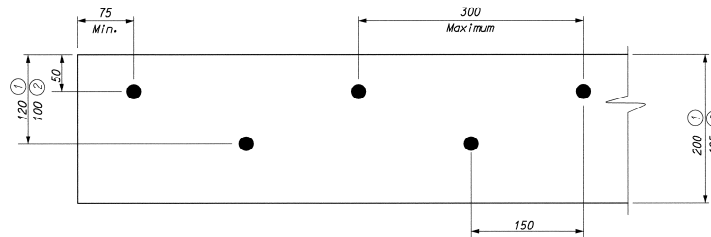
MAINTENANCE OF TRAFFIC

### TYPICAL DECK SECTION

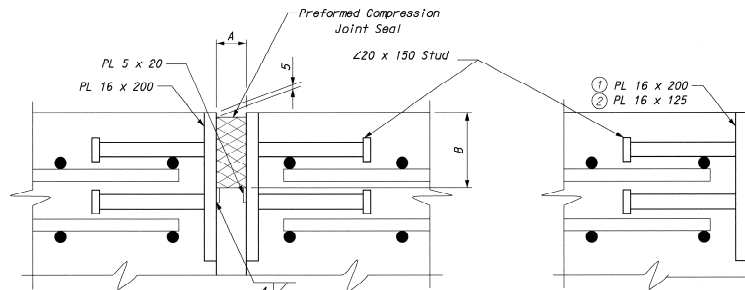
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 DRAWING SHOWN: \_\_\_\_\_



**TYPICAL BARRIER-JOINT TREATMENTS**  
 Details are for skewed joints



**STUD PATTERN**

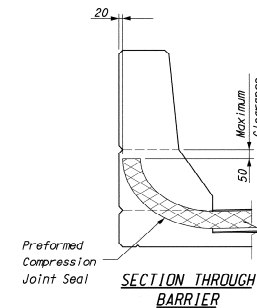


**SECTION THROUGH JOINT**

"A" - Minimum Joint opening @ 15°C  
 "B" - Manufacturer's compressed seal height +5mm.

**SECTION THROUGH ARMORED EDGE**

- ① Assembly weight = 28.0 Kg/m
- ② Assembly weight = 18.5 Kg/m



**General Notes**  
 SPECIFICATIONS: All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. All references to the AASHTO Specifications are to the current edition of the AASHTO Standard Specifications for Highway Bridges.

INSTALLATION PROCEDURE: The ends of the joint seal shall be sealed to prevent the entrance of water and foreign material.

WELDING SPECIFICATIONS: Techniques and welding procedure shall comply with current joint specification ANSI/AASHTO/AWS D1.5 Bridge Welding Code.

MATERIAL SPECIFICATIONS: Steel material shall be new, commercial grade steel suitable for welding. Acceptance will be based on visual inspection by the Engineer. Joint sealing material, only, shall be in accordance with Section 807.02.03 of the Specifications. Stud shear connectors shall conform to ASTM A108, Grade 1015.

LOCATION: The location of armored edges and/or expansion dams shall be in accordance with detail plans.

PAINT: All structural steel shall be cleaned and painted in accordance with the Specifications, except that the area in contact with concrete shall not be painted.

SHOP DRAWINGS: Contrary to the Specifications, shop plans will not be required.

BASIS OF PAYMENT: The accepted quantities of expansion dam will be paid for at the contract unit price per meter for each size, measured along centerline of joint between the vertical faces of the barriers. The cost of furnishing and placing the armored edge shall be included in the lump sum bid for structural steel.

- ① Applies to 200mm slab thickness
- ② Applies to 125mm slab thickness

| JOINT DATA               |                       |
|--------------------------|-----------------------|
| Dim. A<br>@ 15°C<br>(mm) | Move-<br>ment<br>(mm) |
| 40                       | 25                    |
| 50                       | 40                    |
| 60                       | 50                    |

The joint seal supplied must accommodate the required movement shown. Dimension A shall be set with temperature change increment and as required by the manufacturer to obtain the required movement.

| Temperature Change<br>Increment per 5.5°C |                        |                        |                        |
|---|------------------------|------------------------|------------------------|
| Concrete                                  |                        | Steel                  |                        |
| Span Length<br>(meter)                    | Incre-<br>ment<br>(mm) | Span Length<br>(meter) | Incre-<br>ment<br>(mm) |
| 0 - 25                                    | 1.0                    | 0 - 20                 | 1.0                    |
| 25 - 40                                   | 1.5                    | 20 - 30                | 1.5                    |
| 40 - 60                                   | 2.0                    | 30 - 40                | 2.0                    |
| 60 - 80                                   | 3.0                    | 40 - 55                | 3.0                    |
| 80 - 100                                  | 4.0                    |                        |                        |

DATE \_\_\_\_\_  
 DESIGNED \_\_\_\_\_  
 CHECKED \_\_\_\_\_  
 RECOMMENDED \_\_\_\_\_  
 APPROVED P.H.W.A. \_\_\_\_\_

BRIDGE REPAIR & DECK REPLACEMENT SHEET 7

KENTUCKY  
 DEPARTMENT OF HIGHWAYS  
 NEOPRENE EXPANSION  
 DAMS AND  
 ARMORED EDGES

STANDARD DRAWING NO. BJE-001-09

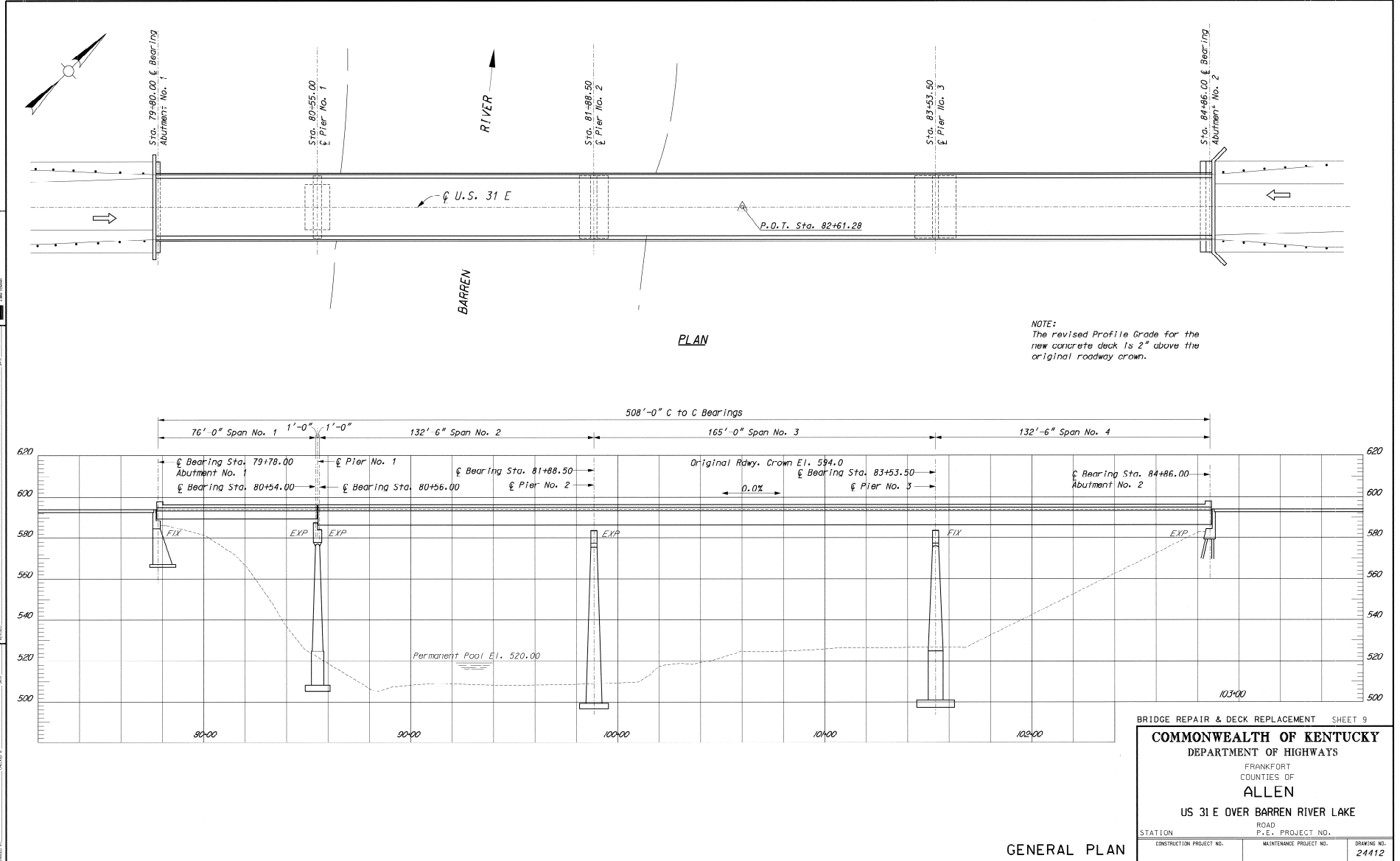
SUBMITTED \_\_\_\_\_ DIRECTOR DIVISION OF BRIDGES \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED \_\_\_\_\_ STATE HIGHWAY ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_



UPDATE DATE  
LETTING DATE

CLASS PREPARED AND SUBMITTED BY  
BOW HAZELLET & EPPOLD  
1997 000000

DATE: 2-28-08  
SCALE: 1"=40'-0"  
SHEET: 14/18  
PROJECT: 24412  
DRAWN BY: MJB  
CHECKED BY: JDE  
INCHES: 1"=40'-0"  
FOOT: 1"=4'-0"  
FEET: 1"=1'-0"

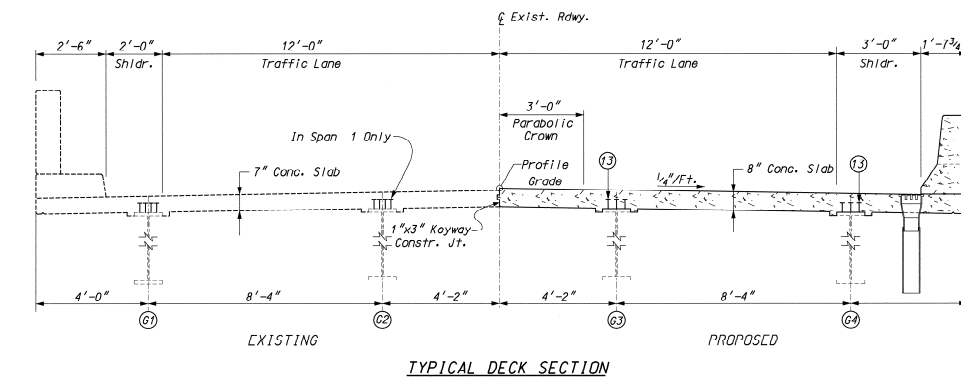
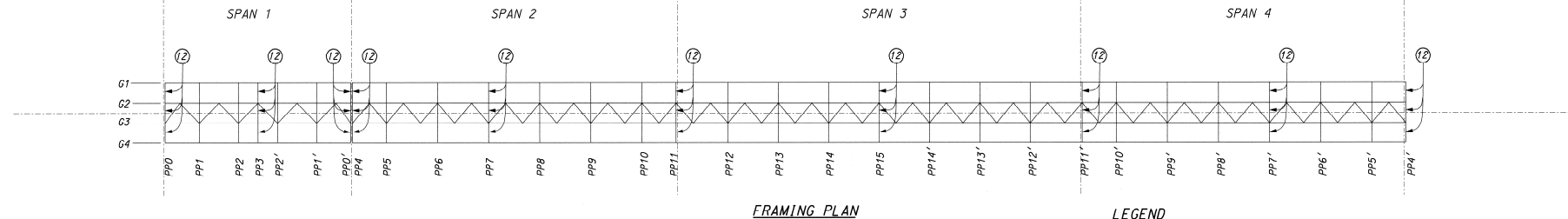
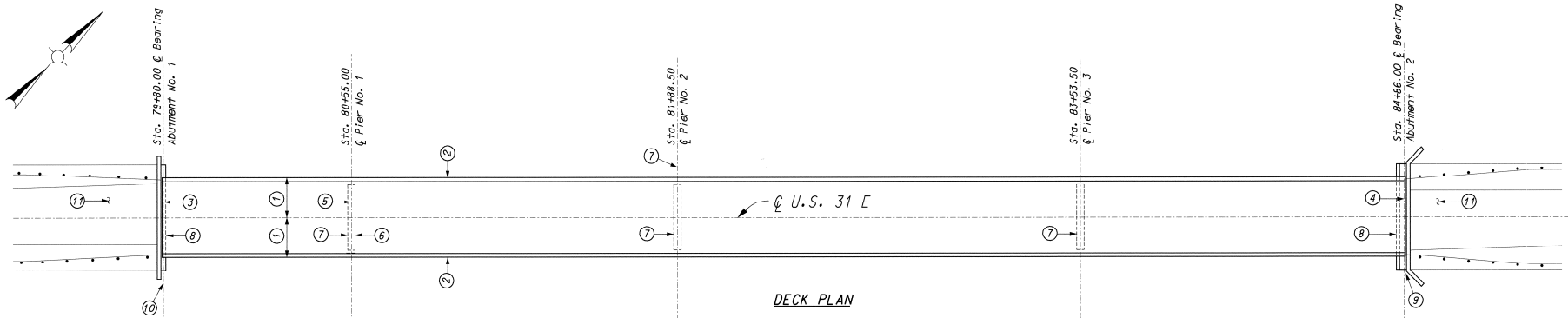


UPDATE DATE  
LETTING DATE

CLASS PREPARED AND SUBMITTED BY  
BRW HAZELT & EDELL  
SUPERVISOR

DATE  
2-28-98  
BY  
MJB  
CHECKED BY  
MJB  
DATE  
5-98  
BY  
MJB

PROJECT NO.  
MJB  
SHEET NO.  
24412  
DATE  
5-98  
BY  
MJB



- LEGEND**
- Remove existing railing and bridge deck. Remove and replace top of backwall.
  - Place 8" concrete bridge deck and concrete barrier.
  - Install 1 1/2" preformed compression joint seal.
  - Install 2 1/2" preformed compression joint seal.
  - Install 4" strip seal expansion joint.
  - Repair the spalled areas on the pier cap, and the vertical crack on the east pier stem.
  - Apply an epoxy slurry seal to the pier cap.
  - Apply an epoxy slurry seal to the abutment bridge seat
  - Reset all the rocker bearings.
  - Replace all the anchor bolt nuts.
  - Construct a 200 ft. long asphalt wedge to match the grade at the abutment.
  - Replace the W-section of the diaphragms at Panel Points 0, 3, 0', 4, 7, 11, 15, 11', 7', and 4'.
  - Install shear connectors in Spans 2, 3 & 4.

BRIDGE REPAIR & DECK REPLACEMENT SHEET 10

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS  
FRANKFORT  
COUNTIES OF  
**ALLEN**  
US 31 E OVER BARREN RIVER LAKE

|                          |                         |             |
|--------------------------|-------------------------|-------------|
| STATION                  | PROJECT NO.             | DRAWING NO. |
| CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. | 24412       |

LAYOUT



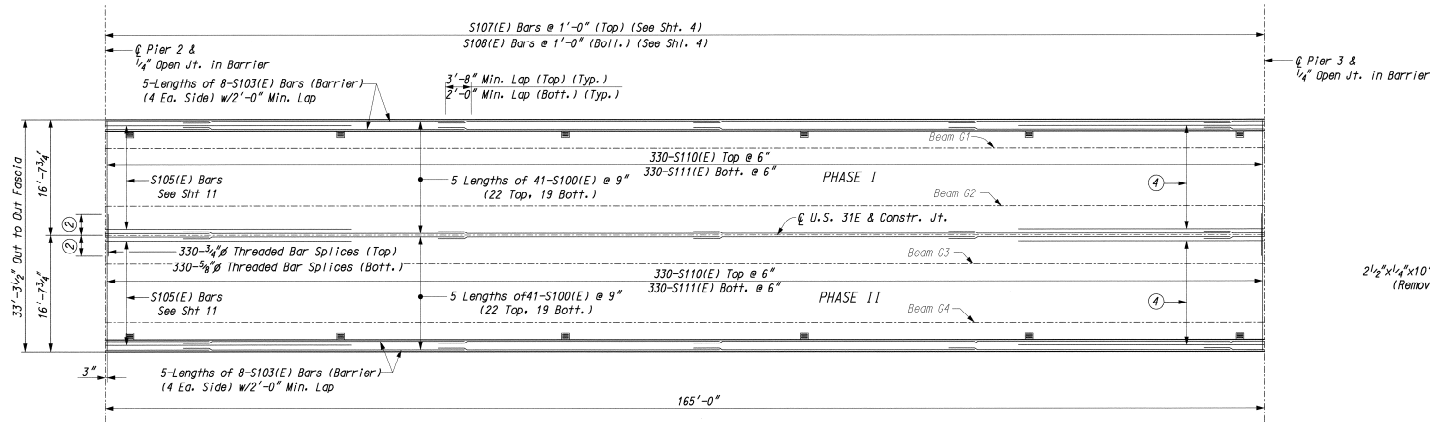


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LETTING DATE

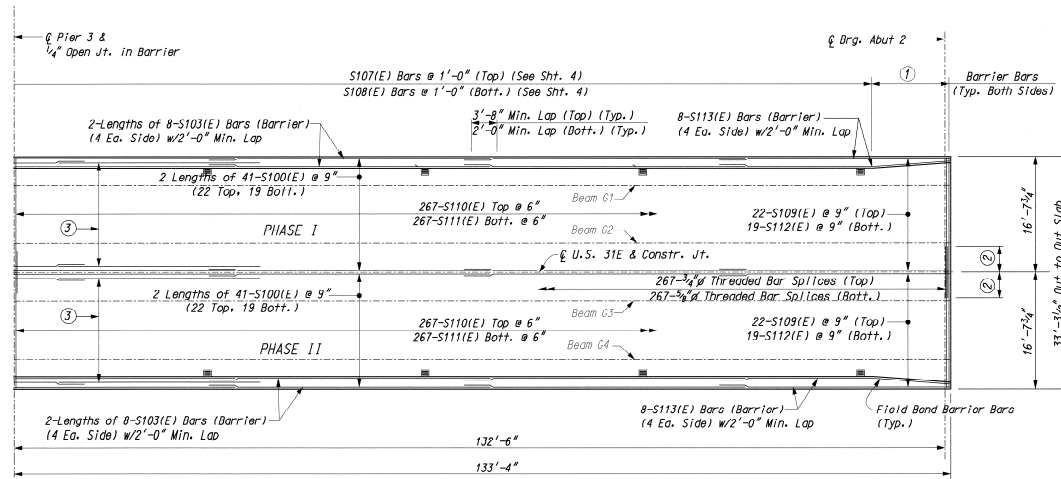
CLASS PREPARED AND SUBMITTED BY  
BOW HAZELLET & SPEDAL  
TYPE ROAD

DATE  
SHEET  
NO.  
OF  
SHEET

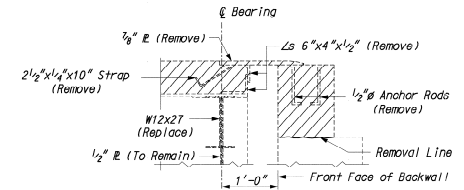
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NO.  
OF  
SHEET



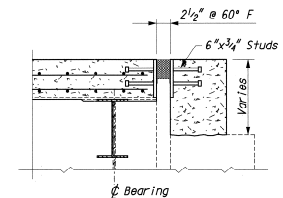
PLAN OF SLAB REPLACEMENT - SPAN 3  
(Bars are shown with 3'-8\"/>



PLAN OF SLAB REPLACEMENT - SPAN 4  
(Bars are shown with 3'-8\"/>



REMOVAL SECTION AT ABUT. 2



RECONSTRUCTION SECTION AT ABUT. 2

(Work with Sheet 7)

- ① 11'-0\"/>

BRIDGE REPAIR & DECK REPLACEMENT SHEET 12

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS  
FRANKFORT  
COUNTIES OF  
ALLEN  
US 31 E OVER BARREN RIVER LAKE

STATION  
CONSTRUCTION PROJECT NO.  
ROAD  
P.E. PROJECT NO.  
MAINTENANCE PROJECT NO.  
DRAWING NO.  
24412

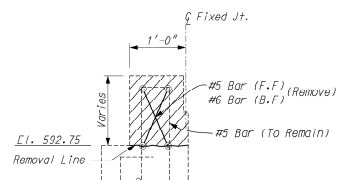
SLAB DETAILS



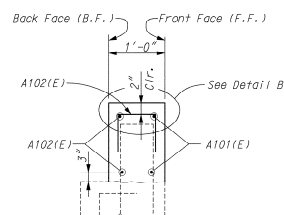
UPDATE DATE  
LETTING DATE

DESIGN PREPARED AND SUBMITTED BY  
BOW HAZELT & EPICAL  
DATE: 2-23-93  
BY: JLB  
CHECKED BY: JLB  
DATE: 5-93

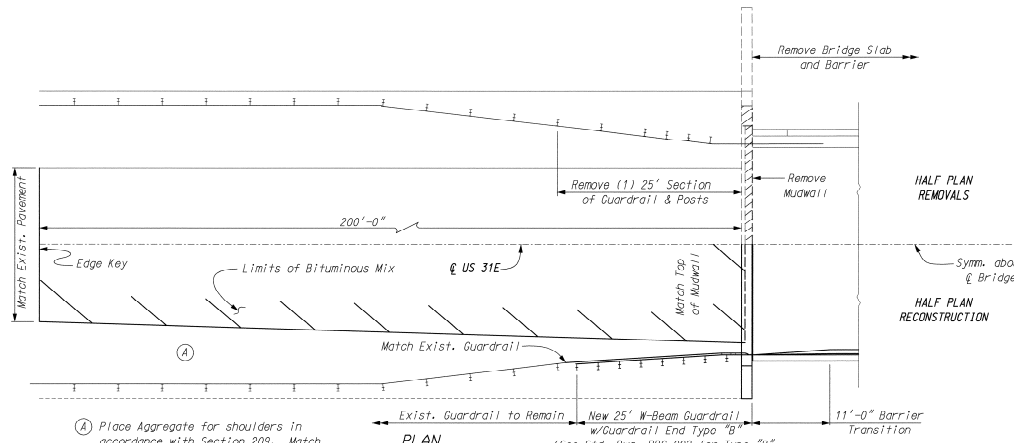
PROJECT: M-18  
SHEET: 2-23  
DATE: 2-23-93  
BY: JLB  
CHECKED BY: JLB  
DATE: 5-93  
PROJECT NO.: 24412  
SHEET NO.: 14



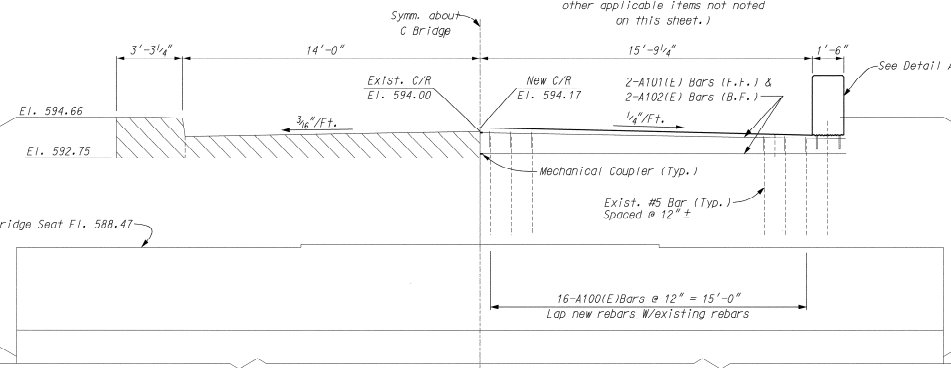
REMOVAL SECTION AT ABUT. 1



RECONSTRUCTION SECTION AT ABUT. 1

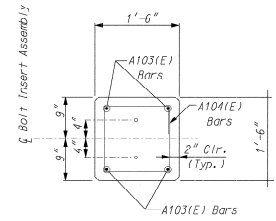


PLAN

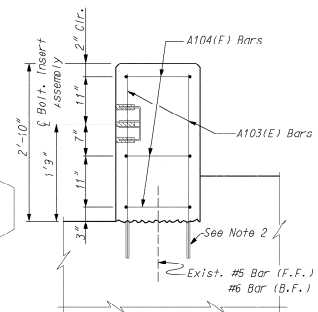


ELEVATION

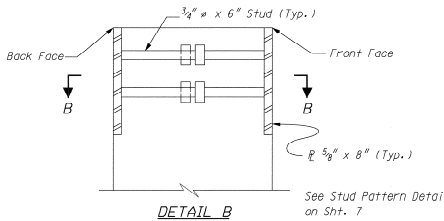
Looking at Front Face of MUWall



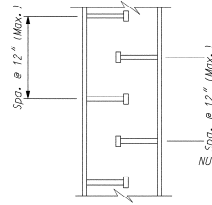
SECTION A-A



DETAIL A



DETAIL B



SECTION B-B

NOTES:

1. All exposed vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and retained in place. Minimum cover shall be 2".
2. Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout - 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
3. Existing elevations are based on the "As-Built" drawings.
4. See Sht. 7 for expansion dam.

ABUTMENT 1

|   |                         |
|---|-------------------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 14 |                         |
| COMMONWEALTH OF KENTUCKY                  |                         |
| DEPARTMENT OF HIGHWAYS                    |                         |
| FRANKFORT                                 |                         |
| COUNTIES OF                               |                         |
| ALLEN                                     |                         |
| US 31 E OVER BARREN RIVER LAKE            |                         |
| STATION                                   | ROAD PROJECT NO.        |
| CONSTRUCTION PROJECT NO.                  | MAINTENANCE PROJECT NO. |
|   | DRAWING NO.             |
|   | 24412                   |

UPDATE DATE  
LETTING DATE

CLASSIFIED AND SUBMITTED BY  
BRIAN HAZELT & ERICA  
DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

DATE

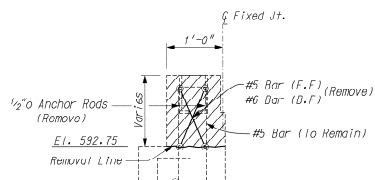
DATE

DATE

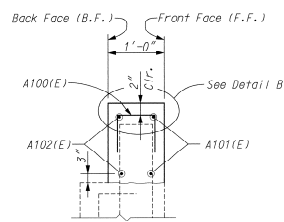
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DATE

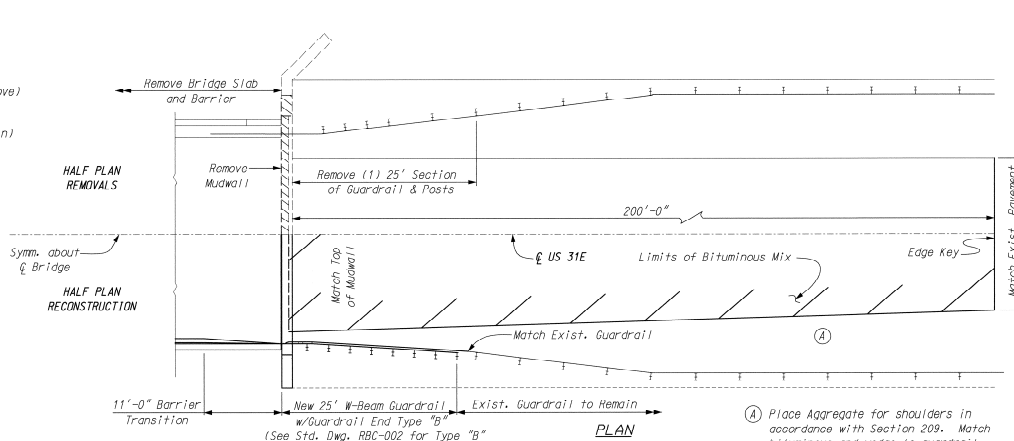
DATE



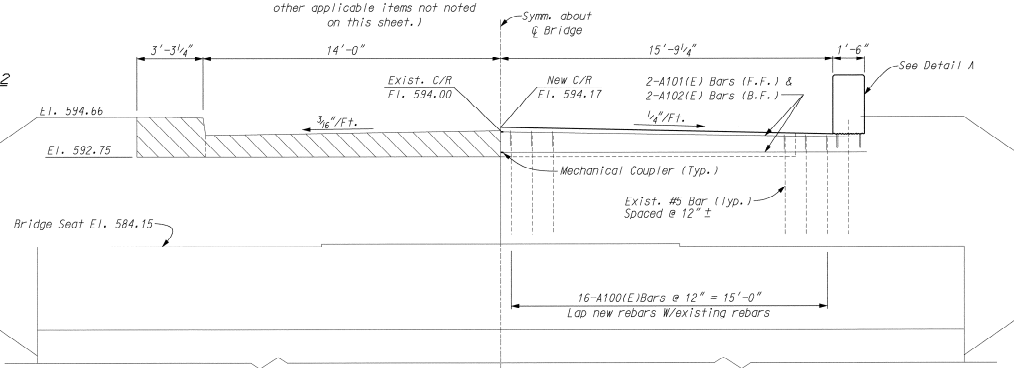
REMOVAL SECTION AT ABUT. 2



RECONSTRUCTION SECTION AT ABUT. 2

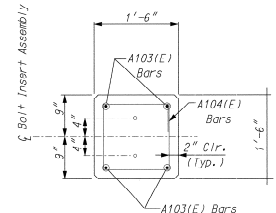


PLAN



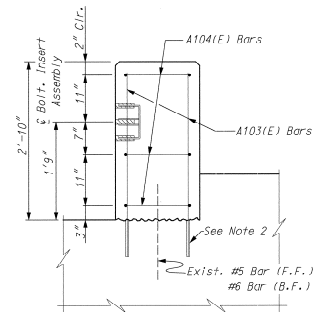
ELEVATION

Looking at Front Face of Mudwall

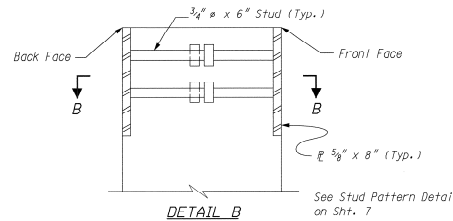


SECTION A-A

• = New Rebar  
◦ = Exist. Rebar

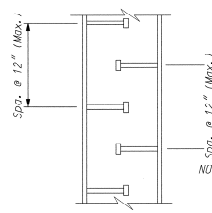


DETAIL A



DETAIL B

See Stud Pattern Detail on Sht. 7



SECTION B-B

NOTES:

1. All exposed Vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and remained in place. Minimum cover shall be 2".
2. Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout = 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
3. Existing elevations are based on the "As-Built" drawings.
4. See Sht. 7 for expansion dam.

ABUTMENT 2

|   |                         |
|---|-------------------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 15 |                         |
| COMMONWEALTH OF KENTUCKY                  |                         |
| DEPARTMENT OF HIGHWAYS                    |                         |
| FRANKLIN COUNTIES OF ALLEN                |                         |
| US 31 E OVER BARREN RIVER LAKE            |                         |
| STATION                                   | ROAD PROJECT NO.        |
| CONSTRUCTION PROJECT NO.                  | MAINTENANCE PROJECT NO. |
|   | DRAWING NO. 24412       |



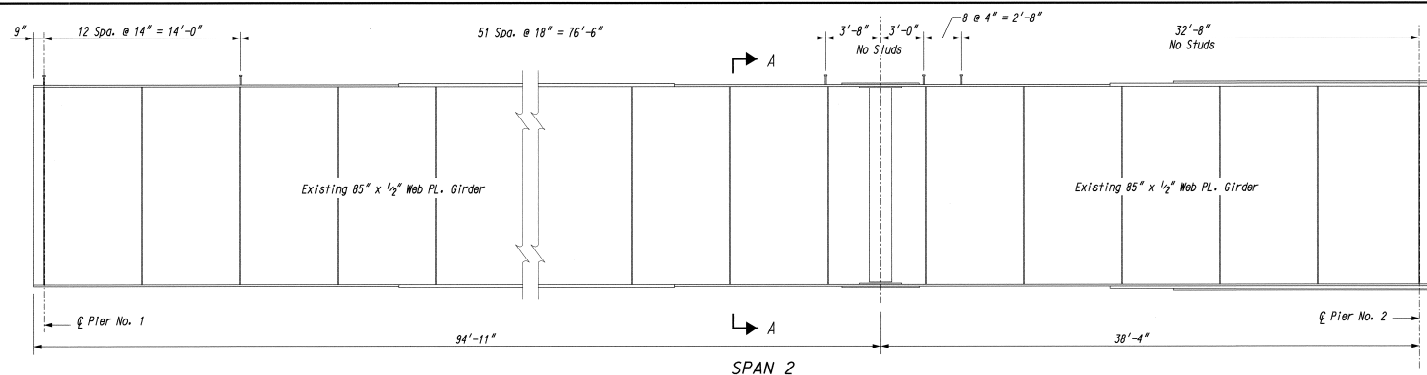
UPDATE DATE  
LETTING DATE

DESIGN REVIEWED AND SUBMITTED BY  
BRW HAZELBET & EDDAL

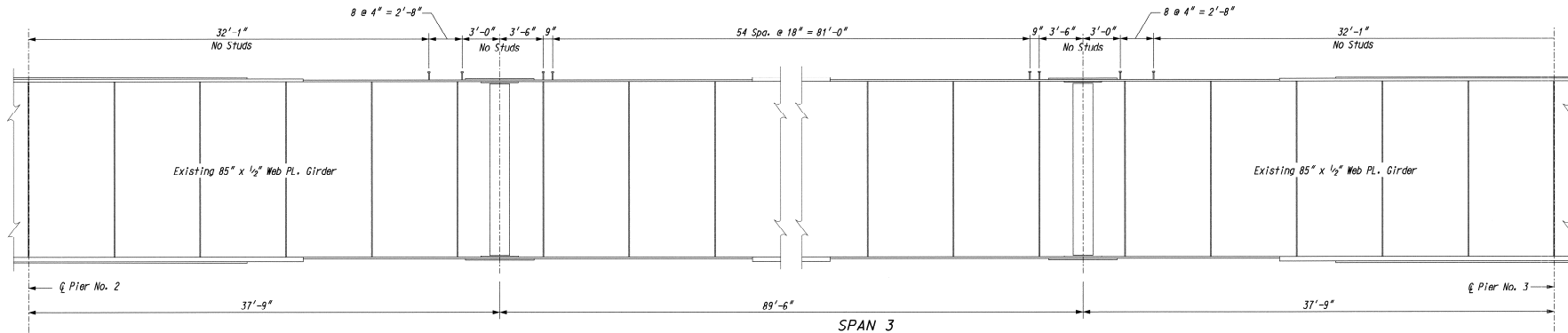
DATE  
BY  
CHECKED  
DATE

DATE  
BY  
CHECKED  
DATE

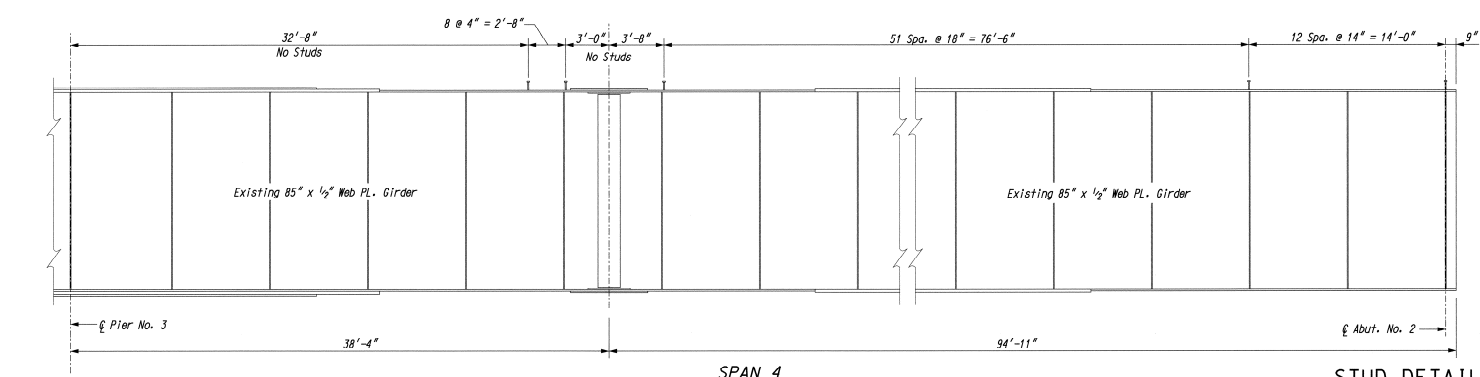
DATE  
BY  
CHECKED  
DATE



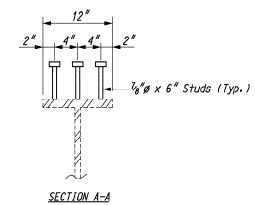
SPAN 2



SPAN 3



SPAN 4



STUD DETAILS

BRIDGE REPAIR & DECK REPLACEMENT SHEET 17

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
**ALLEN**

US 31 E OVER BARREN RIVER LAKE

STATION  
CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO. DRAWING NO. 24412

UPDATE DATE  
LETTING DATE

CLASSIFIED AND SUBMITTED BY  
B.W. HAZELT & ERDAL  
DATE

DATE  
DATE

DATE  
DATE

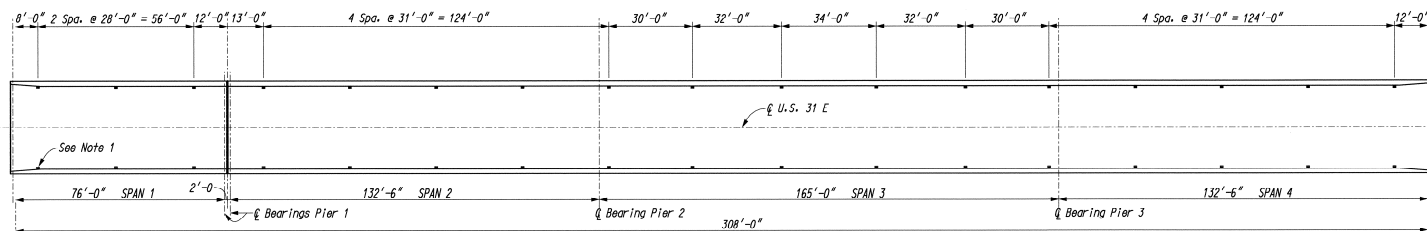
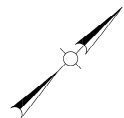
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DATE

DATE  
DATE

DATE  
DATE

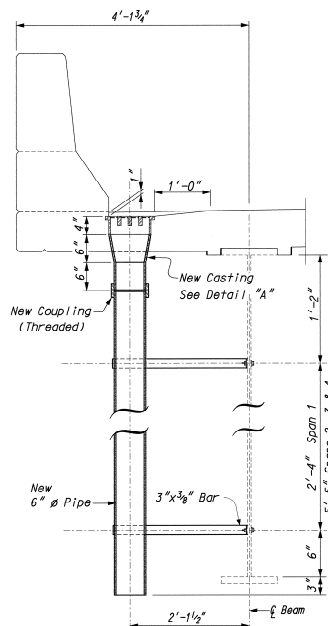
DATE  
DATE

DATE  
DATE

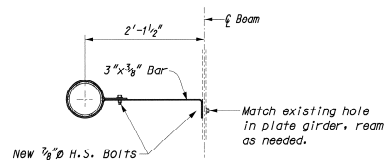


**DRAINAGE PLAN**

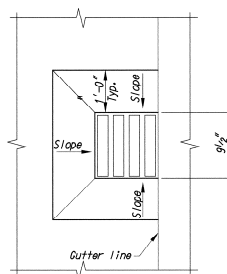
1. Drain castings shall be placed parallel to gutter line in the barrier transition and positioned where the existing holes in the plate girder can be used. Contractor shall field measure in order to provide the appropriate strap length.
2. Drain spacings are from the original contract plans. The Contractor shall locate the existing drain locations in the field and place the new drains at those locations.



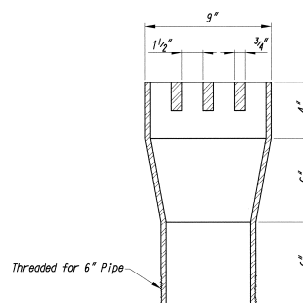
**SECTION AT TRUSS SPAN DECK DRAINS**



**SECTION A-A**



**SECTION B-B**



**DETAIL A**  
(34 required)  
(60 lbs. Ea.)

**DRAINAGE DETAILS**

BRIDGE REPAIR & DECK REPLACEMENT SHEET 18

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
**ALLEN**

US 31 E OVER BARREN RIVER LAKE

STATION P.E. PROJECT NO.

CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO. DRAWING NO.

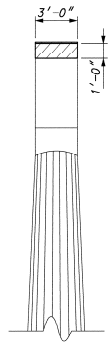
24412



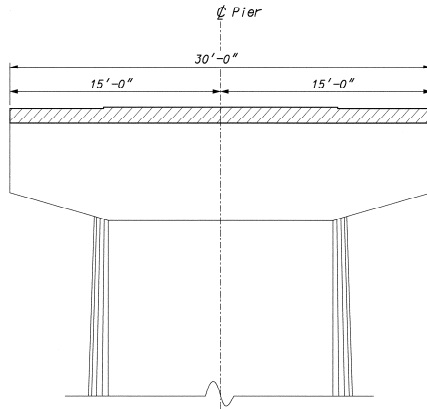
UPDATE DATE  
LETTING DATE

DESIGN, REPAIR AND SUBMITTER BY  
BRW HAZLET & EPOL  
1998-2000

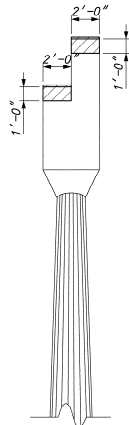
DATE: 2-23-98  
BY: MJB  
CHECKED: MJB  
DATE: 5-28-98  
BY: MJB  
DESIGNED BY: MJB  
DATE: 5-28-98  
BY: MJB



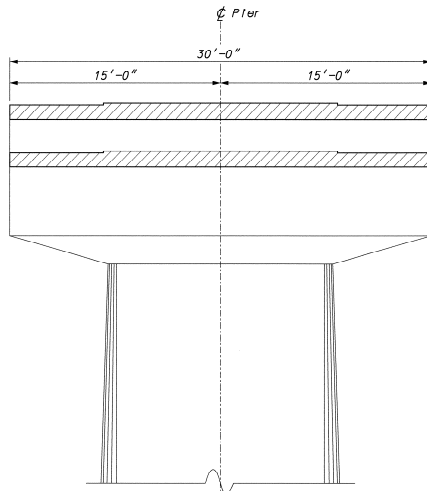
PIER 2 & 3 - END ELEVATION



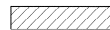
PIER 2 & 3 - ELEVATION



PIER 1 - END ELEVATION



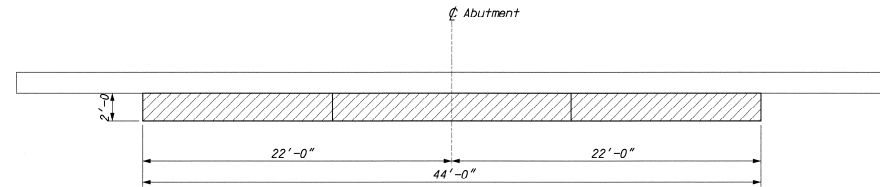
PIER 1 - ELEVATION

 Epoxy Resin Seal (Typ.)

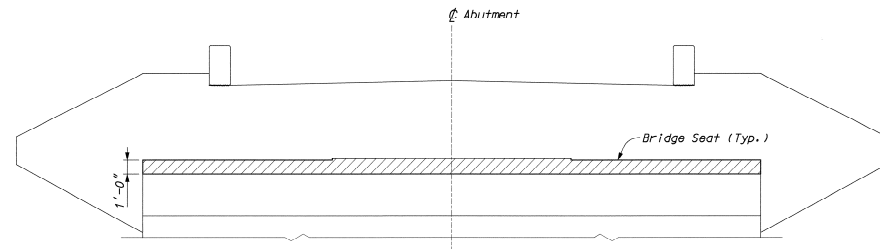
#### CONCRETE SEALING

This work consists of applying an epoxy seal coat to the tops and vertical surfaces of the pier caps and other areas as noted on the plans and in accordance with Section 510 of the Standard Specifications. Contrary to Section 510.05 of the Standard Specifications, payment for this item of work shall be at the contract unit price and payment will be full compensation for all materials, labor and expense of access, equipment, tools and incidentals necessary to clean and seal the designated areas.

| LOCATION   | UNIT    | QUANTITY |
|------------|---------|----------|
| Abutment 1 | Sq. Ft. | 132      |
| Pier 1     | Sq. Ft. | 248      |
| Pier 2     | Sq. Ft. | 156      |
| Pier 3     | Sq. Ft. | 156      |
| Abutment 2 | Sq. Ft. | 132      |



ABUTMENT 1 & 2 - PLAN



ABUTMENT 1 & 2 - ELEVATION

EPOXY SLURRY SEAL

|   |                         |                  |             |
|---|-------------------------|------------------|-------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 19 |                         |                  |             |
| COMMONWEALTH OF KENTUCKY                  |                         |                  |             |
| DEPARTMENT OF HIGHWAYS                    |                         |                  |             |
| FRANKFORT                                 |                         |                  |             |
| COUNTIES OF                               |                         |                  |             |
| ALLEN                                     |                         |                  |             |
| IIS 31 F OVER BARRFN RIVER I AKF          |                         |                  |             |
| STATION                                   | ROAD                    | P.E. PROJECT NO. | DRAWING NO. |
| CONSTRUCTION PROJECT NO.                  | MAINTENANCE PROJECT NO. |                  | 24412       |



UPDATE DATE  
LETTING DATE

PLANS PREPARED AND SUBMITTED BY  
BRW HAZELT & ERDA  
2000/0000

DATE  
2-38  
5-38

REVISION  
NO. 1  
NO. 2

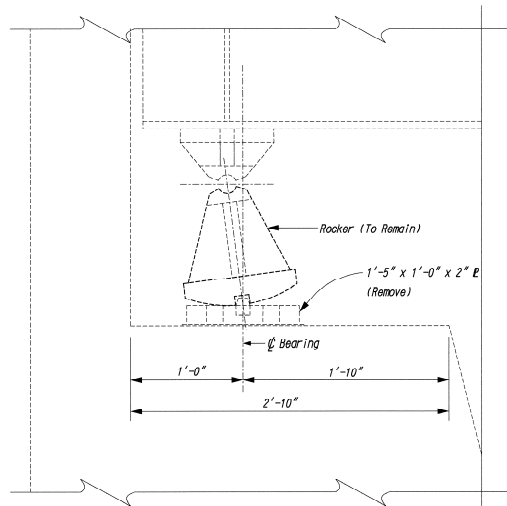
REVISION  
NO. 3  
NO. 4

REVISION  
NO. 5  
NO. 6

REVISION  
NO. 7  
NO. 8

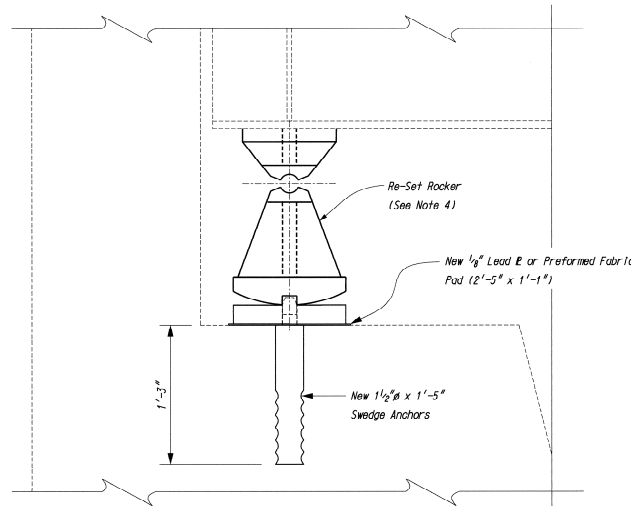
REVISION  
NO. 9  
NO. 10

REVISION  
NO. 11  
NO. 12



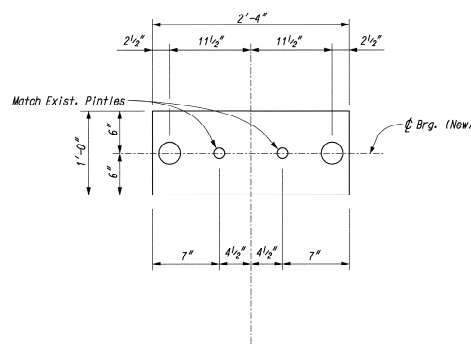
ELEVATION

EXISTING SECTION



ELEVATION

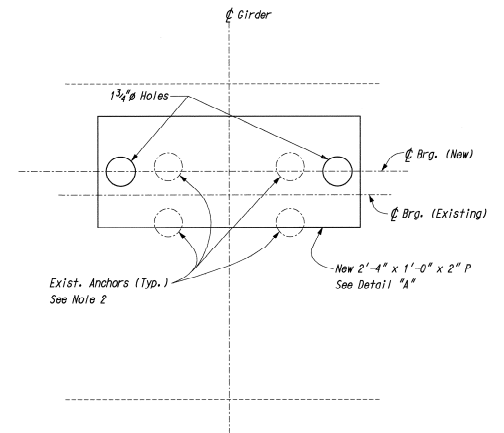
RECONSTRUCTION SECTION



DETAIL "A"

NOTE:

1. The Contractor shall submit a plan for jacking to the Engineer for approval. The webs of the girders must be stiffened at jacking points. The jacking stiffeners shall remain in place after the work is completed.
2. Cut the exposed anchors flush with the top of concrete.
3. Anchors shall be placed in accordance with Section 607.03.17 of the Standard Specifications.
4. Re-Set rocker bearings vertical at 60°F. Apply appropriate temperature change increment as directed by the Engineer. Jacking Load = 21 Kips per girder (Steel Wt. Only)
5. This lump sum bid item consists of furnishing, fabricating, installing and painting all new structural steel. The work includes jacking the bridge, placing new masonry plates, lead plates, anchor bolts, jacking stiffener, re-setting the rockers, and miscellaneous structural steel. The lump sum bid for this work will be full compensation for all materials, equipment, temporary support, labor and incidentals to complete the work.



PLAN

BRIDGE REPAIR & DECK REPLACEMENT SHEET 21

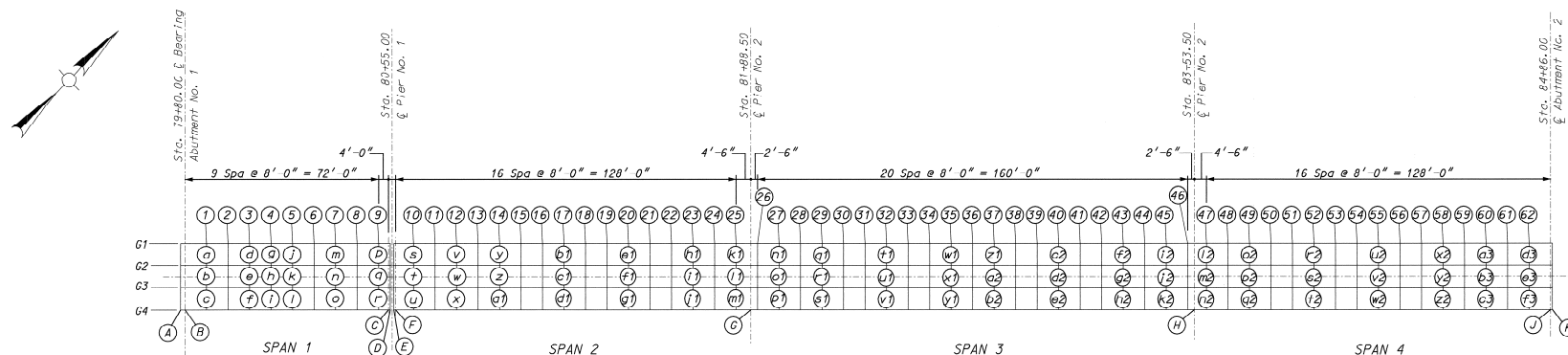
COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
ALLEN

US 31 E OVER BARREN RIVER LAKE

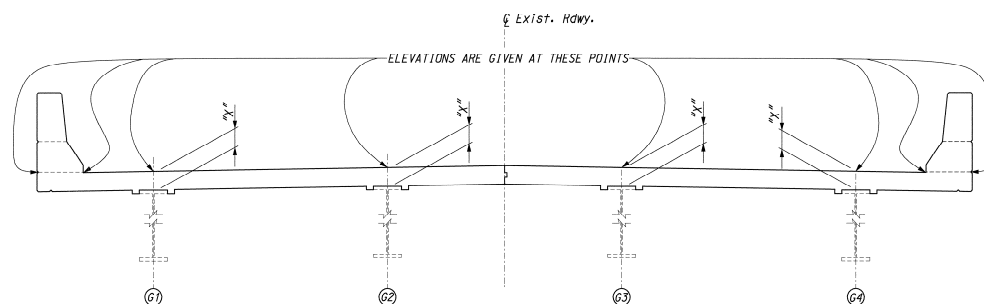
|         |                          |                         |                      |
|---------|--------------------------|-------------------------|----------------------|
| STATION | CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. | DRAWING NO.<br>24412 |
|---------|--------------------------|-------------------------|----------------------|

ROCKER REPAIRS - ABUTMENT 2



FRAMING PLAN

Scale: 1" = 20'



TYPICAL DECK SECTION

### SCREED ELEVATIONS

NOTES

1. Take elevations at top of beam at points indicated after diaphragms are in place, after all false work has been removed and after forms for concrete slabs have been put in place. Read elevations to three decimals using a target and enter readings in table under top of beam elevations.
2. Compute dimension "X" as follows: Construction elevation minus top of beam elevation equals dimension "X". Construction elevation includes camber due to weight of concrete slab, barrier, and future surfacing.
3. For setting templates, measure dimension "X" above top of beam for top of template. Do not set template by elevations.
4. Construct barrier to gutter line grade. Do not add camber to barrier.
5. Slab Thickness Control: After the slab forms are erected and before the slab reinforcement is placed, the Resident Engineer shall take field elevations at the slab thickness check points and enter them in the table in the space provided. The slab thickness shall then be computed. If the computed slab thickness varies more than  $\frac{1}{4}$  inch from the plan thickness, allowing  $1/360$  of the slab span for deflection of the formwork, the form shall be adjusted until the computed slab thickness is within the tolerance allowed.

BRIDGE REPAIR &amp; DECK REPLACEMENT SHEET 22

**COMMONWEALTH OF KENTUCKY**  
**DEPARTMENT OF HIGHWAYS**

FRANKFORT  
COUNTIES OF  
ALLEN

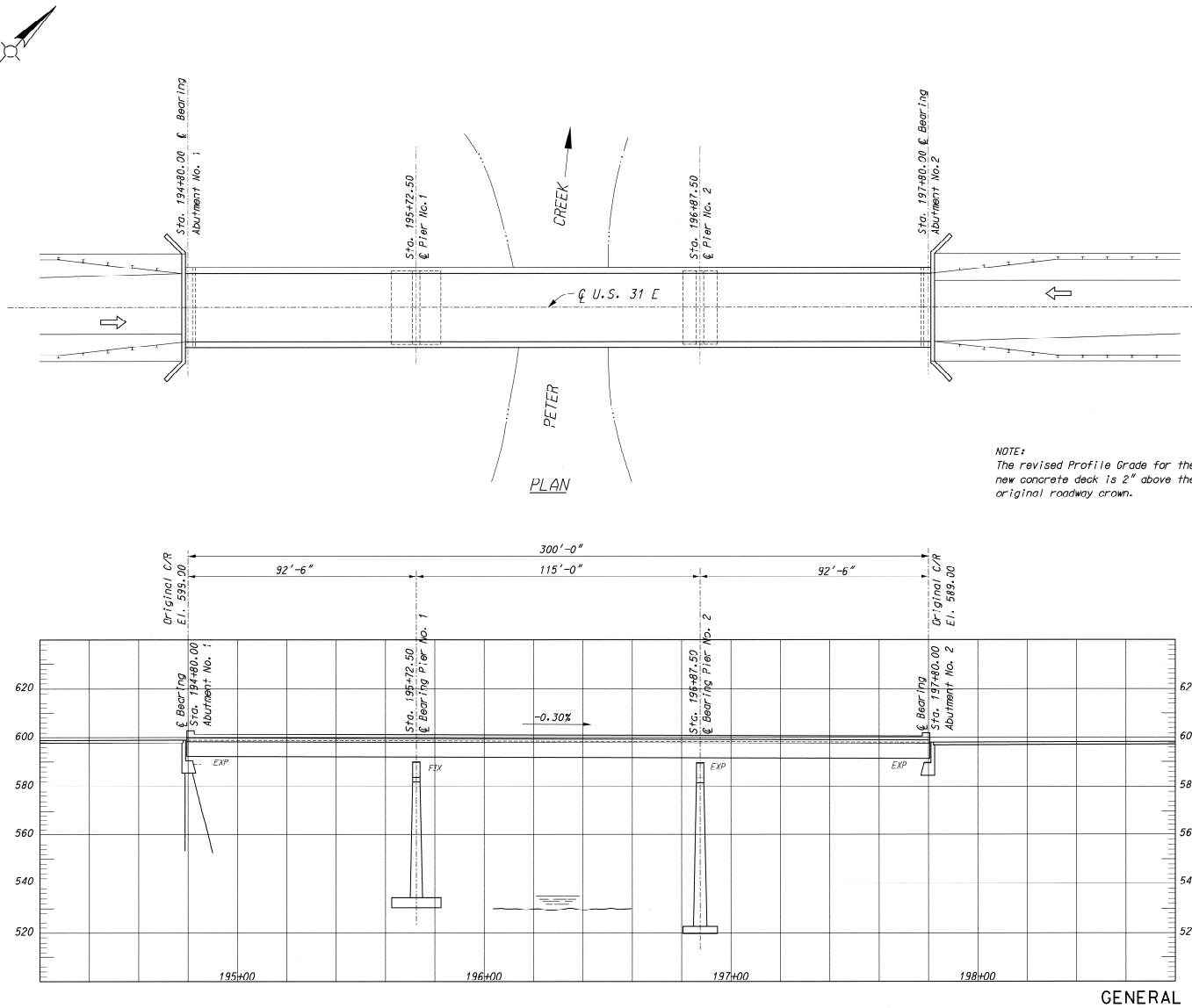
US 31 E OVER BARREN RIVER LAKE

|         |                          |
|---------|--------------------------|
| STATION | ROAD<br>P.E. PROJECT NO. |
|---------|--------------------------|

|                          |                         |                  |  |
|--------------------------|-------------------------|------------------|--|
| STATION                  |                         | F.E. PROJECT NO. |  |
| CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. | DRAWING NO.      |  |
|                          |                         | 24412            |  |

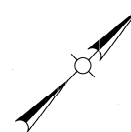












- RECONSTRUCTION SECTION AT ABUT. 2

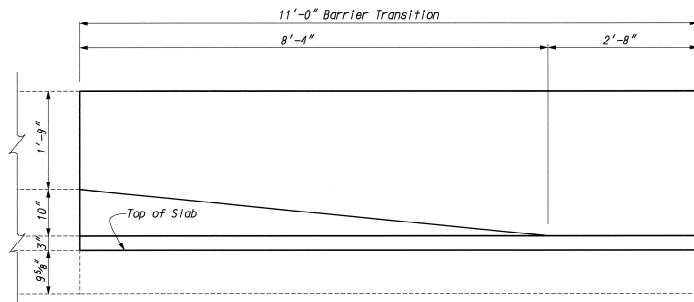
SLAB DETAILS

UPDATE DATE  
LETTING DATE

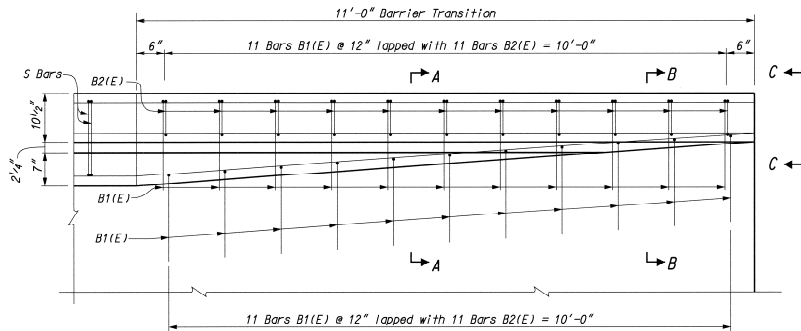
CLASS PREPARED AND SUBMITTED BY  
BRW HAZLET & EDOAL  
DATE  
BY

DATE  
BY  
CHECKED BY  
DATE  
BY

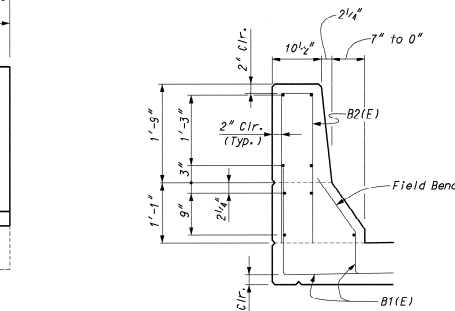
DATE  
BY  
CHECKED BY  
DATE  
BY  
DATE  
BY  
DATE  
BY



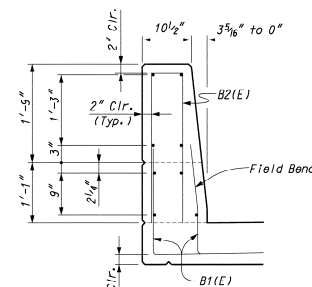
ELEVATION



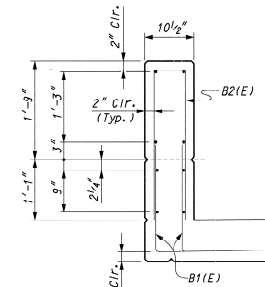
PLAN OF BARRIER TRANSITION



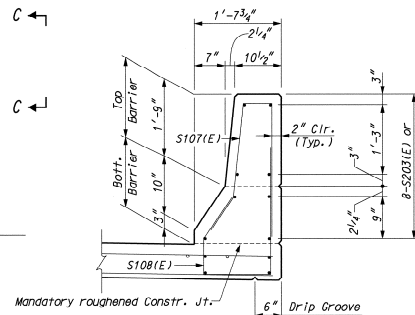
SECTION A-A



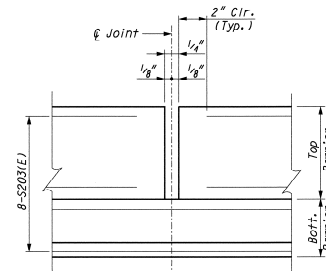
SECTION B-B



SECTION C-C

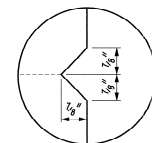


TYPICAL FASCIA BARRIER SECTION



ELEVATION -1/4" OPEN JOINT

Field cut rebars, as needed, in the top barrier section to provide clearance at the joint.



RUSTICATION GROOVE DETAIL

Rustication groove at outside face is required only when construction joint is used. If the optional construction joint is used in any barrier curb on the abutments or superstructure section, it shall be used for all barrier curbs.

BARRIER DETAILS

|   |  |                         |             |
|---|--|-------------------------|-------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 28 |  |                         |             |
| COMMONWEALTH OF KENTUCKY                  |  |                         |             |
| DEPARTMENT OF HIGHWAYS                    |  |                         |             |
| FRANKFORT                                 |  |                         |             |
| COUNTIES OF                               |  |                         |             |
| BARREN                                    |  |                         |             |
| US 31 E OVER PETER CREEK                  |  |                         |             |
| STATION                                   |  | ROAD PROJECT NO.        |             |
| CONSTRUCTION PROJECT NO.                  |  | MAINTENANCE PROJECT NO. |             |
|   |  |                         | DRAWING NO. |
|   |  |                         | 24412       |

UPDATE DATE  
LETTING DATE

DESIGNED BY  
BRIAN HAZELT & ERDAL  
DATE

DATE

DATE

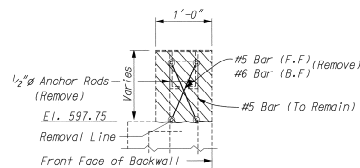
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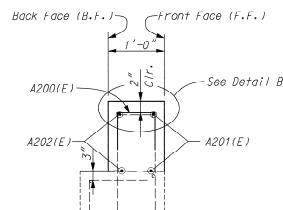
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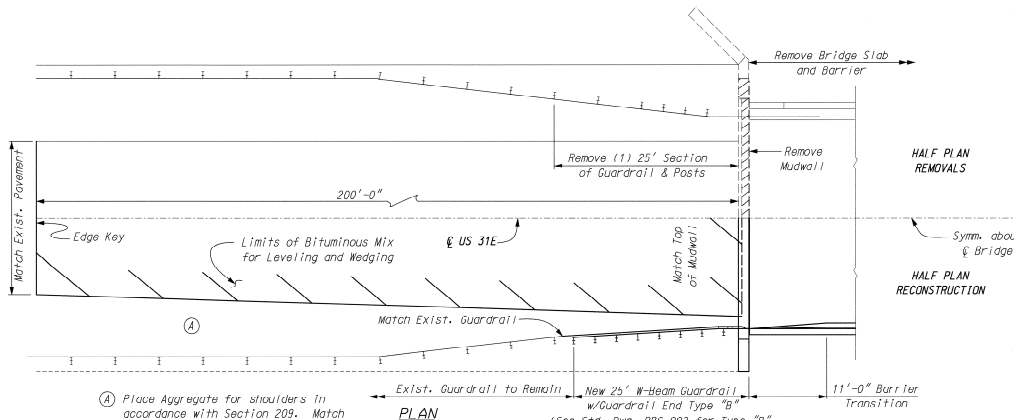


REMOVAL SECTION AT ABUT. 1



RECONSTRUCTION SECTION AT ABUT. 1

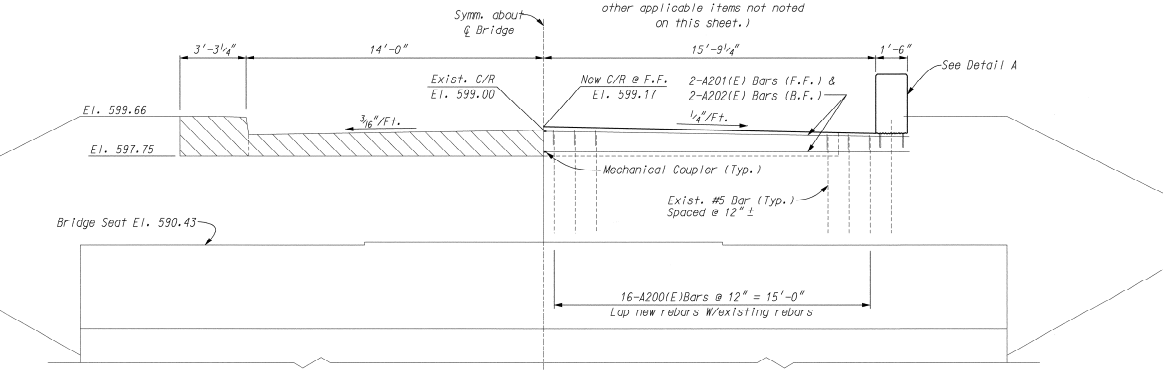
Scale: 1" = 1'-0"



PLAN

(A) Place Aggregate for shoulders in accordance with Section 209. Match bituminous and wedge to guardrail as directed by the Engineer.

(See Std. Dwg. ABC-002 for Type "B" Connector Detail. 4 Bolt Insert Assembly, new guardrail and post layout, and all other applicable items not noted on this sheet.)



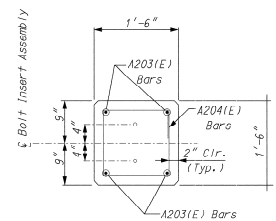
HALF PLAN REMOVALS

ELEVATION

HALF PLAN RECONSTRUCTION

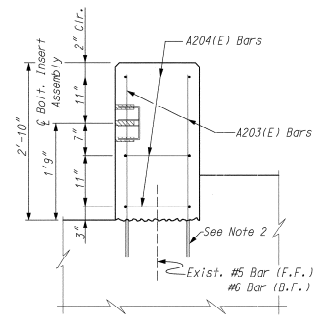
Looking at Front Face of Mudwall

Remove Concrete

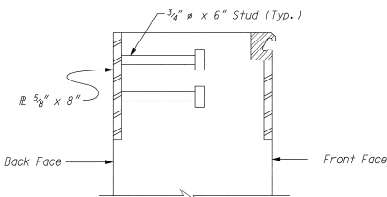


SECTION A-A

n = New Rebar  
n = Exist. Rebar



DETAIL A



DETAIL B

See Stud Pattern Detail on Sht. 7

NOTES:

1. All exposed vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and remained in place. Minimum cover shall be 2".
2. Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout = 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
3. Existing elevations are based on the "As-Built" drawings.
4. See Sht. 27 for strip seal expansion dam.

ABUTMENT 1

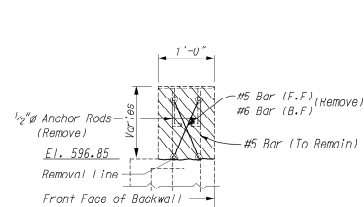
|   |                         |
|---|-------------------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 29 |                         |
| COMMONWEALTH OF KENTUCKY                  |                         |
| DEPARTMENT OF HIGHWAYS                    |                         |
| FRANKFORT                                 |                         |
| COUNTIES OF                               |                         |
| BARREN                                    |                         |
| US 31 E OVER PETER CREEK                  |                         |
| STATION                                   | HEAD P.E. PROJECT NO.   |
| CONSTRUCTION PROJECT NO.                  | MAINTENANCE PROJECT NO. |
|   | DRAWING NO.             |
|   | 24412                   |

UPDATE DATE  
LETTING DATE

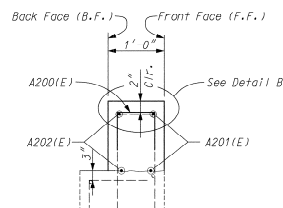
DESIGN PREPARED AND SUBMITTED BY  
BRW HAZELT & EDGAR  
DATE 2-28-08  
SCALE 1" = 1'-0"

DATE 2-28-08  
SCALE 1" = 1'-0"

DESIGNED BY  
CHECKED BY  
DATE 2-28-08  
SCALE 1" = 1'-0"

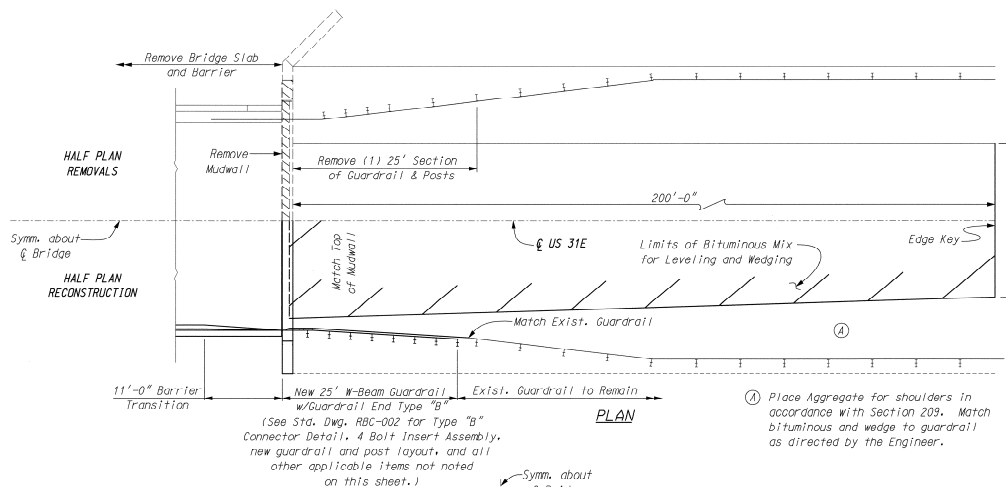


REMOVAL SECTION AT ABUT. 2

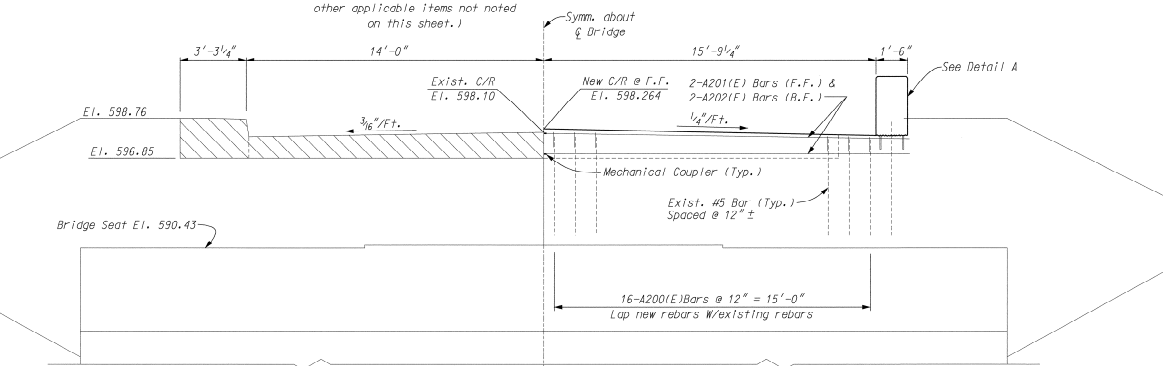


RECONSTRUCTION SECTION AT ABUT. 2

Scale: 1" = 1'-0"

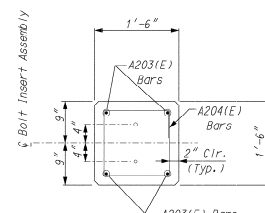


PLAN



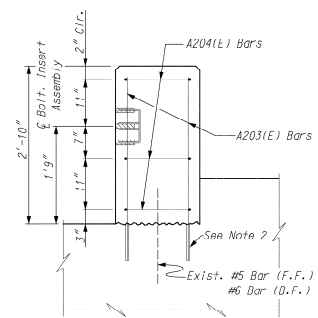
ELEVATION

Looking at Front Face of Mudwall

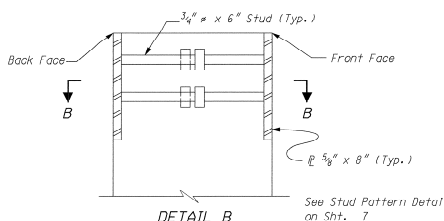


SECTION A-A

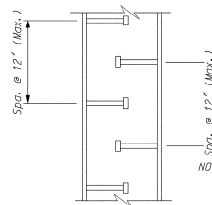
• = New Rebar  
n = Exist. Rebar



DETAIL A



DETAIL B



SECTION B-B

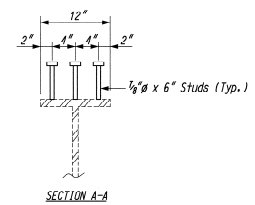
NOTES:

1. All exposed vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and remained in place. Minimum cover shall be 2".
2. Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout = 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
3. Existing elevations are based on the "As-Built" drawings.
4. See Sht. 7 for Silicone Joint Seal.

ABUTMENT 2

|   |                  |
|---|------------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 30 |                  |
| COMMONWEALTH OF KENTUCKY                  |                  |
| DEPARTMENT OF HIGHWAYS                    |                  |
| FRANKFORT                                 |                  |
| COUNTIES OF                               |                  |
| BARREN                                    |                  |
| US 31 E OVER PETER CREEK                  |                  |
| STATION                                   | ROAD             |
| CONSTRUCTION PROJECT NO.                  | P.E. PROJECT NO. |
| MAINTENANCE PROJECT NO.                   | DRAWING NO.      |
|   | 24412            |





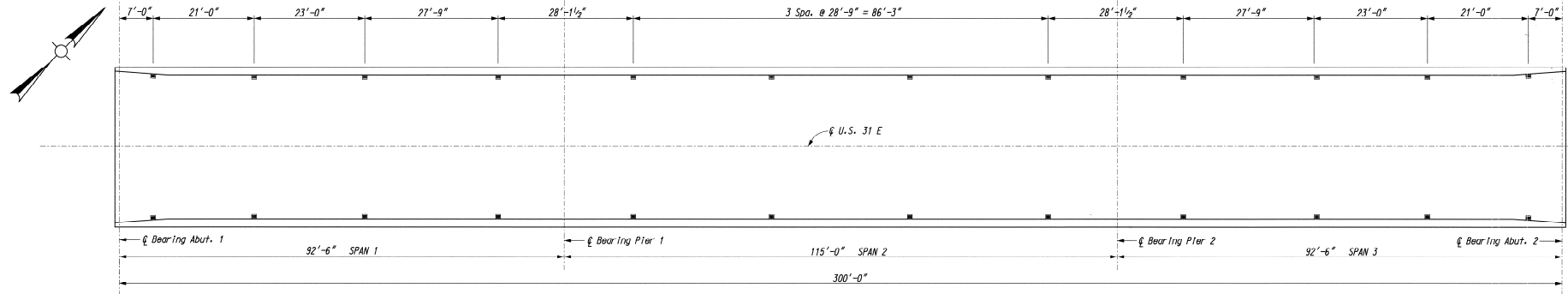
|   |                          |
|---|--------------------------|
| BRIDGE REPAIR & DECK REPLACEMENT  | SHEET 32                 |
| <p align="center"><b>COMMONWEALTH OF KENTUCKY</b><br/> <b>DEPARTMENT OF HIGHWAYS</b></p> <p align="center">FRANKFORT<br/> COUNTIES OF<br/> <b>BARREN</b></p> <p align="center">US 31 E OVER PETER CREEK</p> |                          |
| STATION   | ROAD<br>P.E. PROJECT NO. |
| CONSTRUCTION PROJECT NO.  | MAINTENANCE PROJECT NO.  |
|   | DRAWING NO.<br>24412     |

## STUD DETAILS

UPDATE DATE  
LETTING DATE

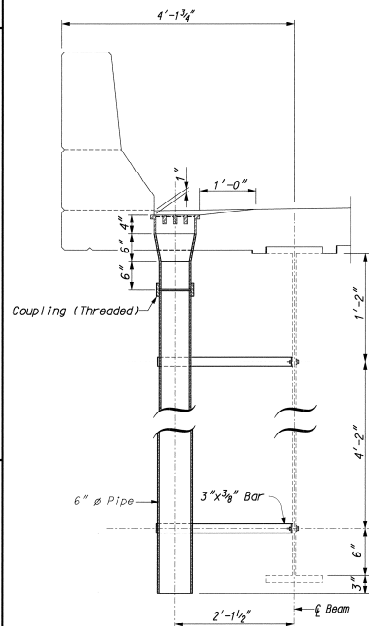
BRIDGE REPAIR AND DECK REPLACEMENT  
BRW HAZLET & EDDAL  
2017

DESIGNED BY: **SEH** DATE: **2-28-18** CHECKED BY: **MB** DATE: **5-28-18**  
DRAWN BY: **MB** DATE: **5-28-18** PROJECT NO.: **24412**  
SCALE: **1"=10'-0"** SHEET NO.: **33**

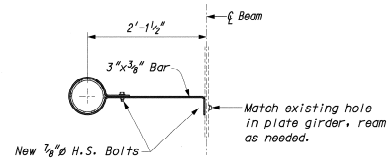


**DRAINAGE PLAN**

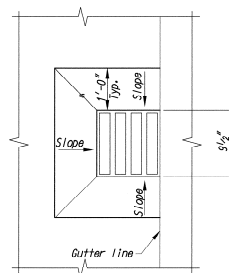
1. Drain castings shall be placed parallel to gutter line in the barrier transition and positioned where the existing holes in the plate girder can be used. Contractor shall field measure in order to provide the appropriate strap length.
2. Drain spacings are from the original contract plans. The Contractor shall locate the existing drain locations in the field and place the new drains at those locations.



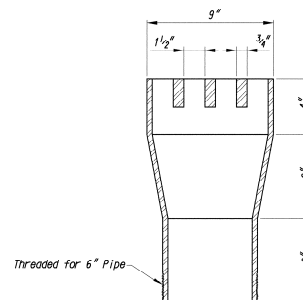
**SECTION AT TRUSS SPAN DECK DRAINS**



**SECTION A-A**



**SECTION B-B**



**DETAIL A**  
(24 required)  
(60 Lbs. Ea.)

**DRAINAGE DETAILS**

|                                  |                         |                  |
|----------------------------------|-------------------------|------------------|
| BRIDGE REPAIR & DECK REPLACEMENT |                         | SHEET 33         |
| <b>COMMONWEALTH OF KENTUCKY</b>  |                         |                  |
| DEPARTMENT OF HIGHWAYS           |                         |                  |
| FRANKFORT                        |                         |                  |
| COUNTIES OF                      |                         |                  |
| <b>BARREN</b>                    |                         |                  |
| US 31 E OVER PETER CREEK         |                         |                  |
| STATION                          | ROAD                    | P.E. PROJECT NO. |
| CONSTRUCTION PROJECT NO.         | MAINTENANCE PROJECT NO. | DRAWING NO.      |
|                                  |                         | <b>24412</b>     |



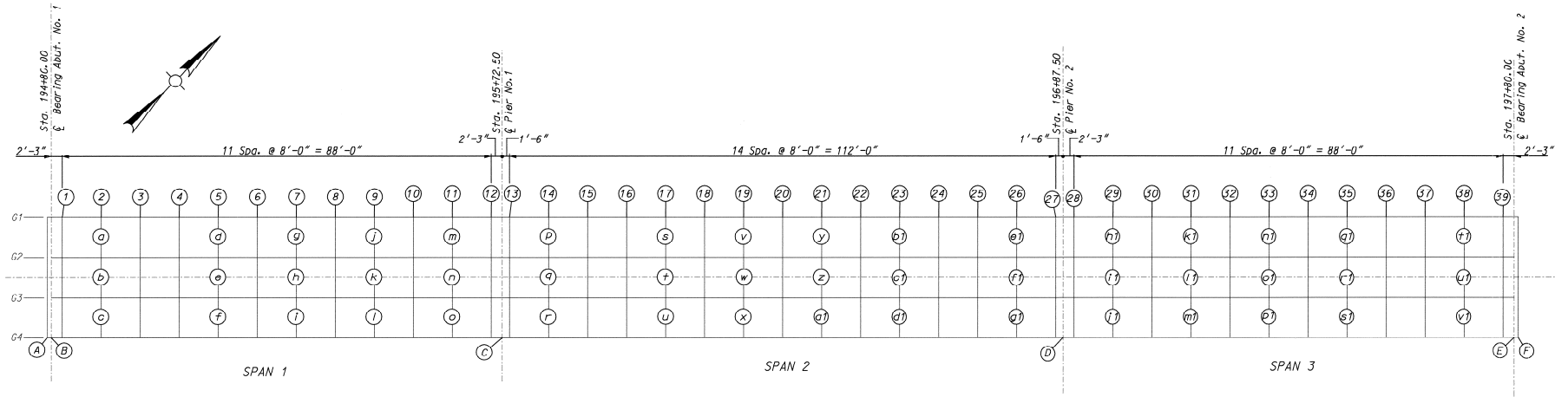


UPDATE DATE  
LETTING DATE

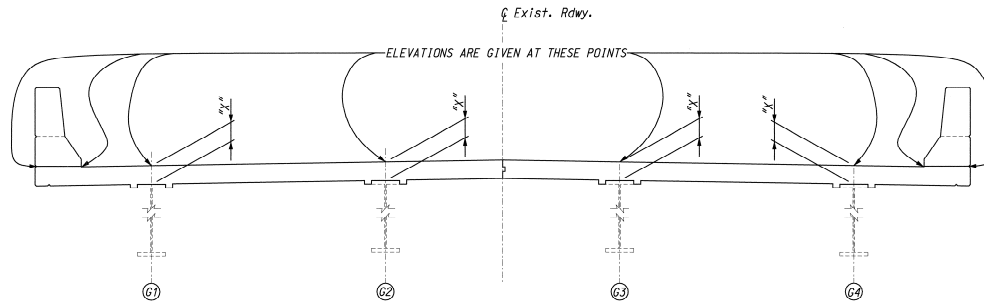
CLASS PREPARED AND SUBMITTED BY  
BRW HAZELT & EFDAL

DATE  
SHEET

DESIGNED BY  
CHECKED BY  
DATE  
SHEET  
2-38  
5-38  
MJB  
CPS  
BRW HAZELT & EFDAL



FRAMING PLAN  
Scale: 1" = 40'



TYPICAL DECK SECTION

NOTES

1. Take elevations on top of beam at points indicated after diaphragms are in place, after all false work has been removed and after forms for concrete slabs have been put in place. Read elevations to three decimals using a target and enter readings in table under top of beam elevations.
2. Compute dimension "X" as follows: Construction elevation minus top of beam elevation equals dimension "X". Construction elevation includes camber due to weight of concrete slab, barrier, and future surfacing.
3. For setting templates, measure dimension "X" above top of beam for top of template. Do not set template by elevations.
4. Construct barrier to gutter line grade. Do not add camber to barrier.
5. Slab Thickness Control: After the slab forms are erected and before the slab reinforcement is placed, the Resident Engineer shall take field elevations at the slab thickness check points and enter them in the table in the space provided. The slab thickness shall then be computed. If the computed slab thickness varies more than 1/4 inch from the plan thickness, allowing 1/360 of the slab span for deflection of the formwork, the form shall be adjusted until the computed slab thickness is within the tolerance allowed.

SCREED ELEVATIONS

|   |                  |
|---|------------------|
| BRIDGE REPAIR & DECK REPLACEMENT SHEET 35 |                  |
| COMMONWEALTH OF KENTUCKY                  |                  |
| DEPARTMENT OF HIGHWAYS                    |                  |
| FRANKFORT                                 |                  |
| COUNTIES OF                               |                  |
| BARREN                                    |                  |
| US 31 E OVER PETER CREEK                  |                  |
| STATION                                   | ROAD             |
| CONSTRUCTION PROJECT NO.                  | P.E. PROJECT NO. |
| MAINTENANCE PROJECT NO.                   | DRAWING NO.      |
|   | 24412            |



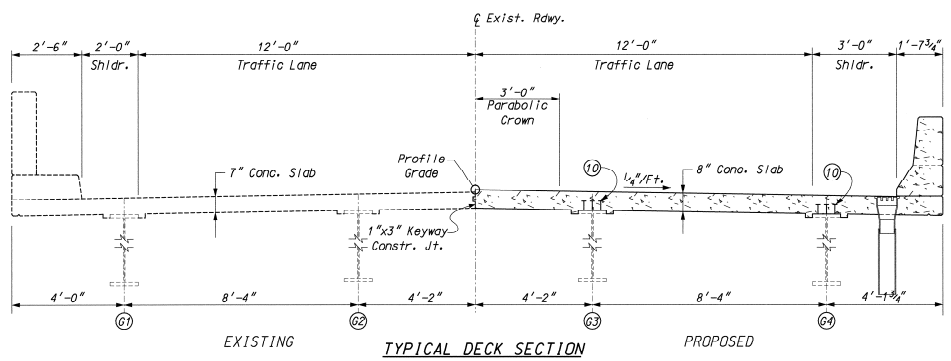
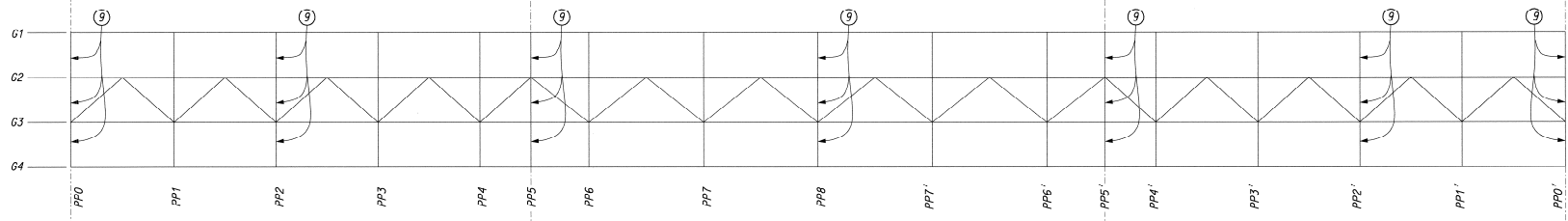
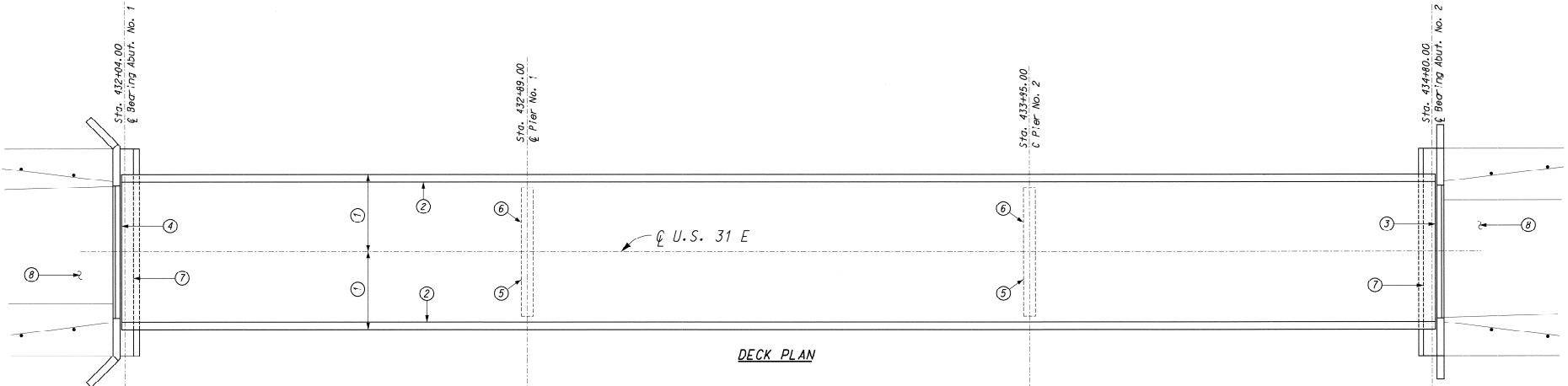


UPDATE DATE  
LETTING DATE

CLASSED PREPARED AND SUBMITTED BY  
BRW HAZELT & ERDAL

DATE  
TIME  
REVISED  
REVISED  
REVISED  
REVISED

SETH  
MJB  
DATE 2-29-99  
TIME 5:59  
REVISION BY  
CHECKED BY  
DESIGNED BY  
DRAWN BY



- LEGEND**
- 1 Remove existing railing and bridge deck. Remove and replace top of backwall
  - 2 Place 8" concrete bridge deck and concrete barrier.
  - 3 Install 1 1/2" preformed compression joint seal
  - 4 Install 2 1/2" preformed compression joint seal.
  - 5 Repair the spalled areas in the pier. (Pier 1 & 2)
  - 6 Apply an epoxy slurry seal to the pier cap.
  - 7 Apply an epoxy slurry seal to the abutment bridge seat.
  - 8 Construct a 200 ft. long asphalt wedge to match the grade at the abutment.
  - 9 Replace the W-section to the diaphragms at Panel Points 0, 2, 5, 8, 5', 2', and 0'.
  - 10 Install Shear Connectors.

LAYOUT

BRIDGE REPAIR & DECK REPLACEMENT SHEET 30

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

HANKS-URH  
COUNTIES OF  
**BARREN**

US 31 E OVER SKAGGS CREEK

ROAD  
P.E. PROJECT NO.

STATION  
CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO.

DRAWING NO.  
**24472**

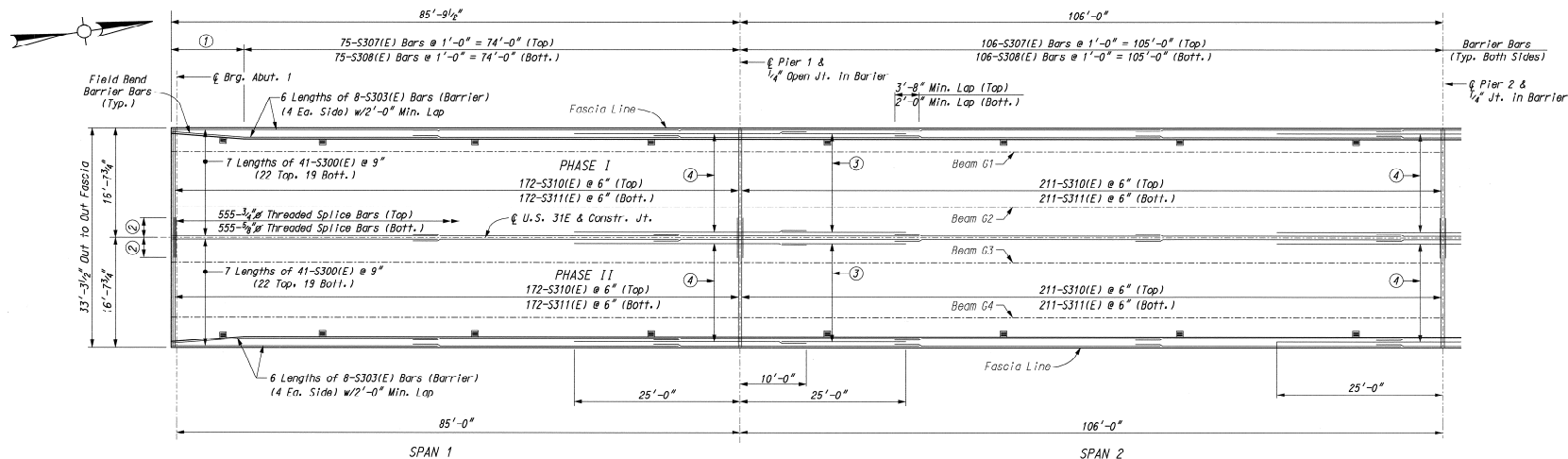
UPDATE DATE: \_\_\_\_\_  
LETTING DATE: \_\_\_\_\_

CLASH REPORT AND SUBMITTEE BY:  
BRW, HAZELT & EPOL  
DATE: 10/1/2020

DATE: 10/1/2020  
TIME: 5:38 PM

SEV: 2-38  
NAB: 5-38  
MJB: 10-38  
LOE: 10-38

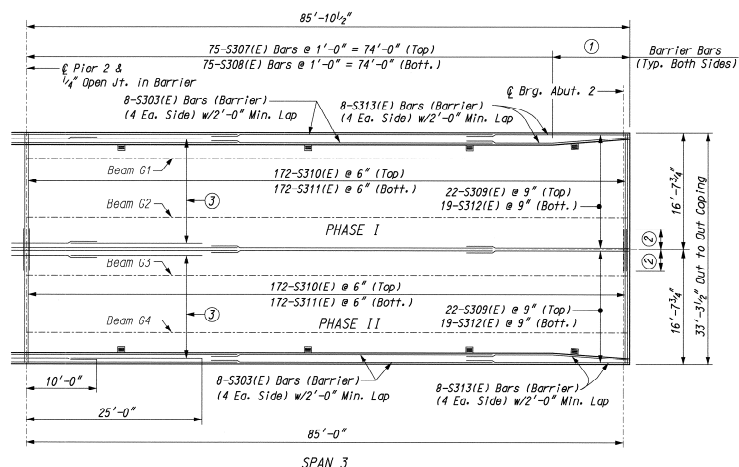
REVISION NO. 1  
DATE: 10/1/2020  
BY: BRW, HAZELT & EPOL



PLAN OF SLAB REPLACEMENT - SPANS 1 & 2

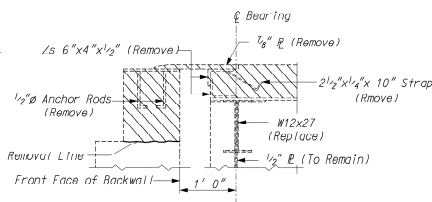
(Bars are shown with 3'-8" Lap)

- ① 11'-0" Barrier Transition Details, See Sht. 40
- ② 3'-0" Min. Lap (Top), 2'-6" Min. Lap (Bott.)
- ③ 21-S304(E) Bars, See Detail "A" & Typ. Section on Sht. 6 for spacing.
- ④ 21-S305(E) Bars, See Detail "A" & Typ. Section on Sht. 6 for spacing.

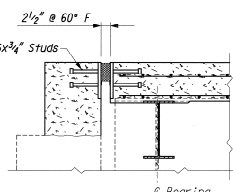


PLAN OF SLAB REPLACEMENT - SPAN 3

(Bars are shown with 3'-8" Lap)

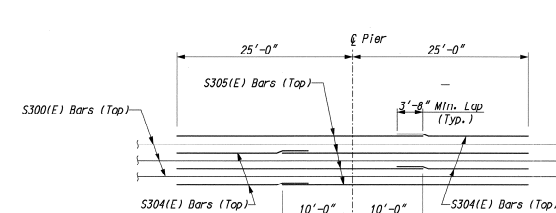


REMOVAL SECTION AT ABUT. 1 & 2

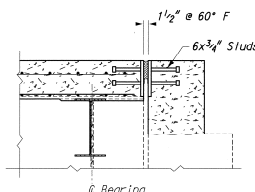


RECONSTRUCTION SECTION AT ABUT. 1

(Work with Sheet 7)



LONGITUDINAL DISTRIBUTION REINFORCEMENT



RECONSTRUCTION SECTION AT ABUT. 2

(Work with Sheet 7)

SLAB DETAILS

BRIDGE REPAIR & DECK REPLACEMENT SHEET 39

COMMONWEALTH OF KENTUCKY

DEPARTMENT OF HIGHWAYS

FRANKFORT

COUNTIES OF

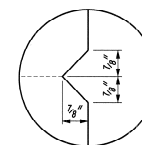
BARREN

US 31 E OVER SKAGGS CREEK

STATION ROAD P.E. PROJECT NO.

CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO. DRAWING NO.

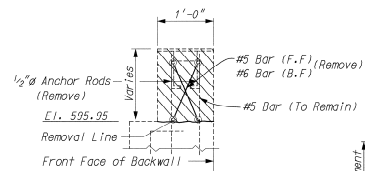
24412



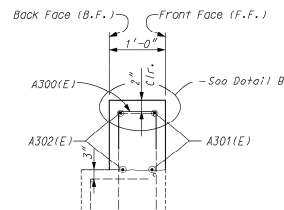
UPDATE DATE  
LETTING DATE

PLANS: REPAIR AND BUILT UP BY  
BRW, HAZELT & EPPS  
DATE: 10/1/00

BRIDGE NO. 2-38  
COUNTY OF BARREN  
PROJECT NO. 24412  
SHEET NO. 41

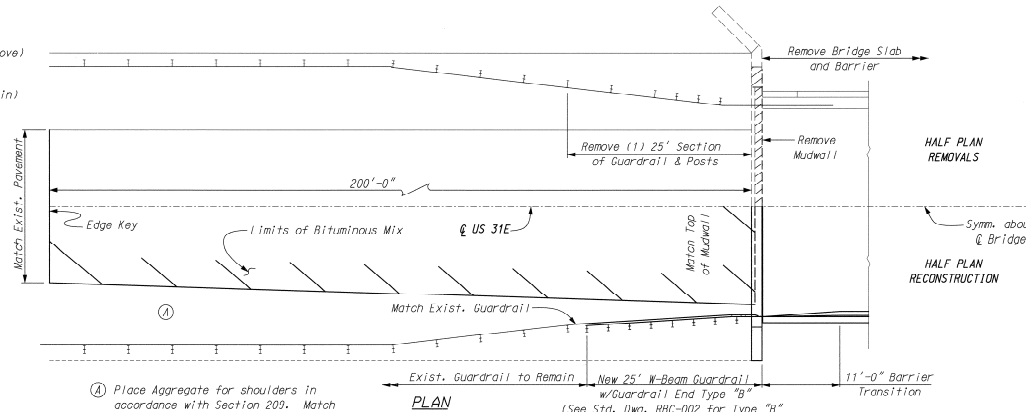


REMOVAL SECTION AT ABUT. 1



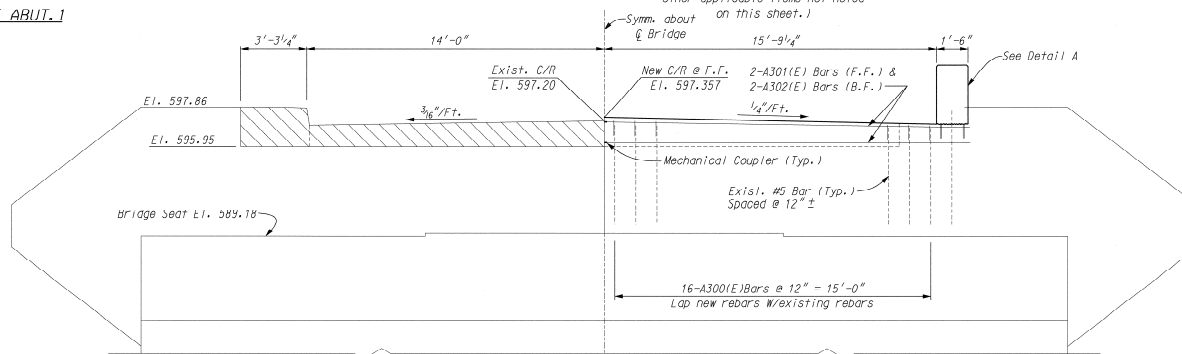
RECONSTRUCTION SECTION AT ABUT. 1

Scale: 1" = 1'-0"



PLAN

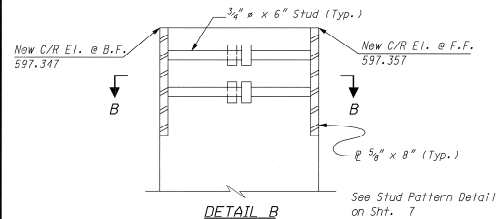
Place Aggregate for shoulders in accordance with Section 209. Match bituminous and wedge to guardrail as directed by the Engineer.



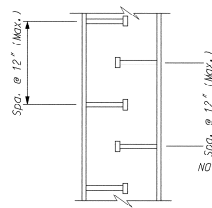
ELEVATION

Looking at Front Face of Mudwall

Remove Concrete



DETAIL B



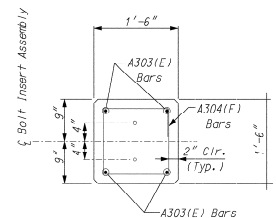
SECTION B-B

NOTE: Stagger stud spacing to avoid interference. (Top row similar)

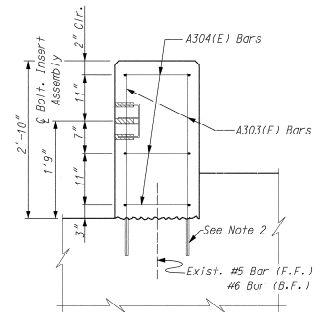
NOTES:

- All exposed vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and remained in place. Minimum pullout = 18,600 lbs.
- Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout = 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
- Existing elevations are based on the "As-Built" drawings.
- See Sht. 7 for expansion dam.

ABUTMENT 1



SECTION A-A



DETAIL A

BRIDGE REPAIR & DECK REPLACEMENT SHEET 41

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS

FRANKFORT

COUNTIES OF

BARREN

US 31 E OVER SKAGGS CREEK

STATION ROAD PROJECT NO.

CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO.

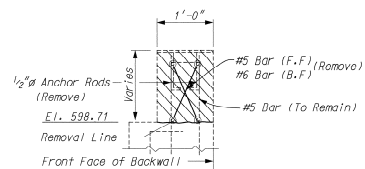
24412

UPDATE DATE  
LETTING DATE

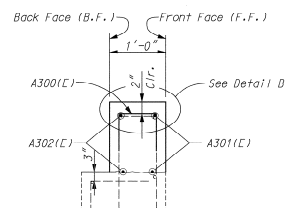
BRIDGE REPAIR AND DECK REPLACEMENT  
BY  
BRIAN HAZLET & ERIC  
10/10/2020

DATE: 2-28-20  
SCALE: 1/4" = 1'-0"  
BY: JLB  
CHECKED BY: JLB  
DESIGNED BY: JLB  
NOTED BY: JLB

BRIDGE NO. 2-58  
COUNTY: BARREN  
ROUTE: 31E  
PROJECT NO. 24412  
DRAWING NO. 24412

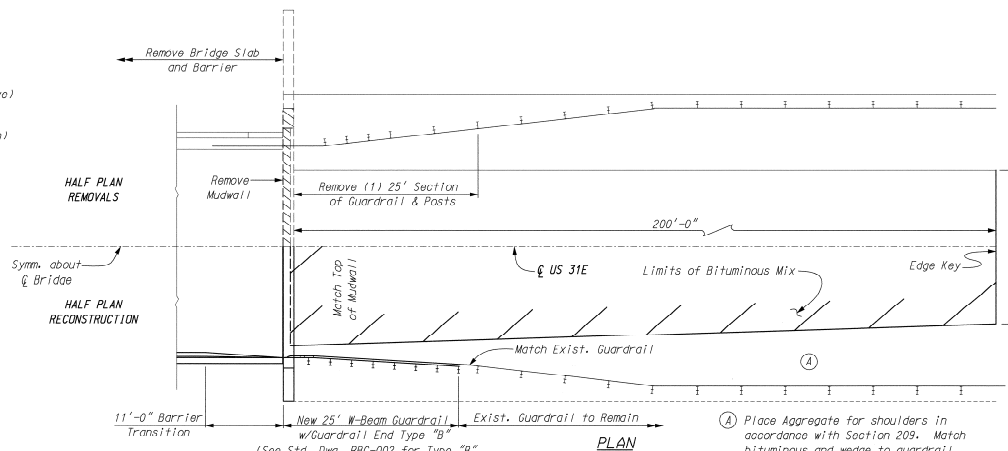


REMOVAL SECTION AT ABUT. 2

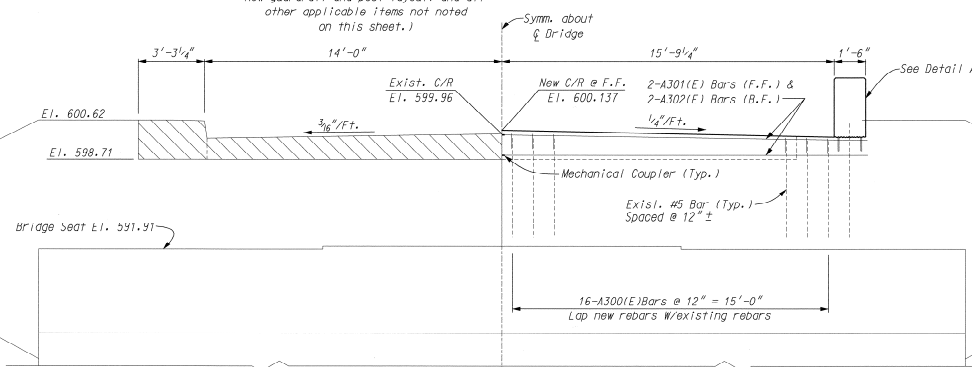


RECONSTRUCTION SECTION AT ABUT. 2

Scale: 1" = 1'-0"



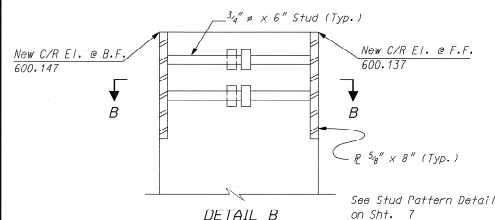
PLAN



ELEVATION

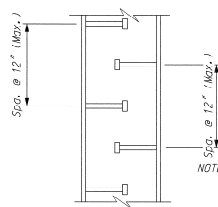
Looking at Front Face of Mudwall

Remove Concrete



DETAIL B

See Stud Pattern Detail on Sht. 7



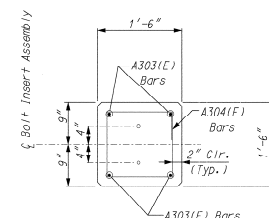
SECTION B-B

NOTE: Slagger stud spacing to avoid interference. (Top row similar)

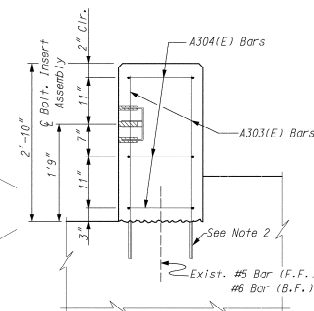
NOTES:

1. All exposed vertical reinforcement bars from partially removed concrete shall be cleaned, straightened, and retained in place. Minimum cover shall be 2".
2. Field drill hole in concrete and embed bar A103(E) 6" with an approved anchor system. Minimum pullout = 18,600 lbs. Stop drilling if a rebar is hit and relocate the hole 3" either side.
3. Existing elevations are based on the "As-Built" drawings.
4. See Sht. 7 for expansion dam.

• = New Rebar  
◦ = Exist. Rebar



SECTION A-A



DETAIL A

BRIDGE REPAIR & DECK REPLACEMENT SHEET 42

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS

FRANKFORT

COUNTIES OF

BARREN

US 31E OVER SKAGGS CREEK

ROAD PROJECT NO. 24412

STATION

CONSTRUCTION PROJECT NO.

MAINTENANCE PROJECT NO.

DRAWING NO. 24412

ABUTMENT 2



UPDATE DATE  
LETTING DATE

DESIGNED BY  
CHECKED BY  
DATE

DATE

DATE

DATE

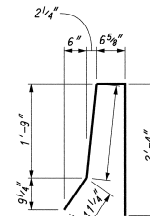
DATE

DATE

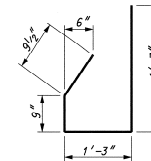
DATE

| BILL OF REINFORCEMENT |      |      |      |        |     |                           |
|-----------------------|------|------|------|--------|-----|---------------------------|
| MARK                  | TYPE | NO.  | SIZE | LENGTH |     | LOCATION                  |
|                       |      |      |      | FT.    | IN. |                           |
| S300(E)               | Str. | 574  | 5    | 40     | 0   | Top & Bott. Deck          |
| S303(E)               | Str. | 112  | 5    | 40     | 0   | Barrier                   |
| S304(E)               | Str. | 84   | 6    | 18     | 8   | Top Deck-Over Piers 1 & 2 |
| S305(E)               | Str. | 84   | 6    | 35     | 0   | Top Deck-Over Piers 1 & 2 |
| S307(E)               | ①    | 1024 | 5    | 5      | 9   | Top Barrier               |
| S308(E)               | ②    | 1024 | 5    | 6      | 6   | Dott. Barrier             |
| S309(E)               | Str. | 44   | 5    | 23     | 1   | LOD DECK                  |
| S310(E)               | Str. | 1110 | 6    | 16     | 5   | Top Deck                  |
| S311(E)               | Str. | 1110 | 5    | 16     | 5   | Dott. Deck                |
| S312(E)               | Str. | 38   | 5    | 11     | 5   | Bott. Deck                |
| S313(E)               | Str. | 16   | 5    | 12     | 0   | Barrier                   |
| A300(E)               | ③    | 64   | 5    | 2      | 0   | Mudwall                   |
| A301(E)               | Str. | 8    | 5    | 17     | 2   | Mudwall                   |
| A302(E)               | Str. | 8    | 6    | 17     | 2   | Mudwall                   |
| A303(E)               | Str. | 16   | 5    | 3      | 2   | End Block                 |
| A304(E)               | ⑥    | 12   | 5    | 5      | 8   | End Block                 |
| B1(E)                 | ④    | 88   | 5    | 3      | 3   | Slab into Barrier         |
| B2(E)                 | ⑤    | 44   | 5    | 5      | 1   | Barrier                   |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |
|                       |      |      |      |        |     |                           |

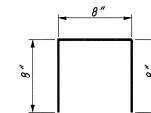
Suffix (E) denotes epoxy coated bars.  
Bar Marks S301(E), S302(E), and S306(E) were not used.



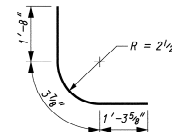
TYPE ①



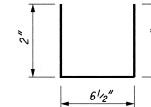
TYPE ②



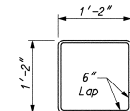
TYPE ③



TYPE ④



TYPE ⑤



TYPE ⑥

BILL OF REINFORCEMENT

BRIDGE REPAIR & DECK REPLACEMENT SHEET 43

COMMONWEALTH OF KENTUCKY

DEPARTMENT OF HIGHWAYS

FRANKFORT

COUNTIES OF

BARREN

US 31 E OVER SKAGGS CREEK

STATION

CONSTRUCTION PROJECT NO.

MAINTENANCE PROJECT NO.

DRAWING NO.

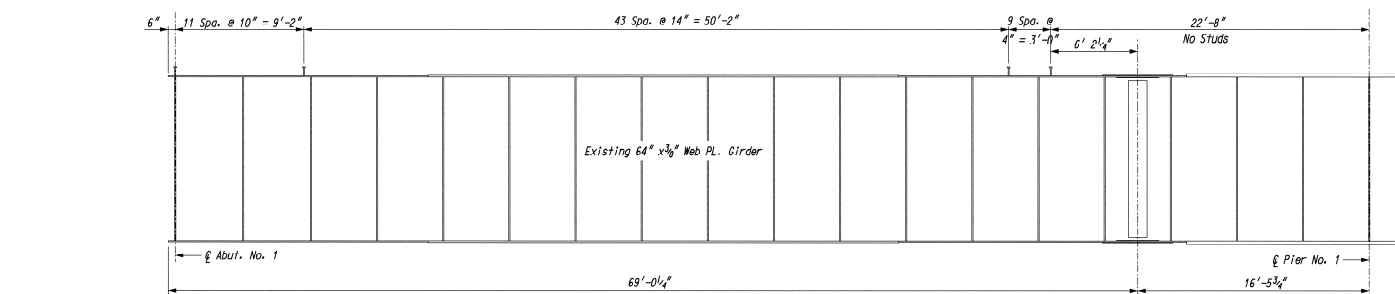
24412

UPDATE DATE  
LETTING DATE

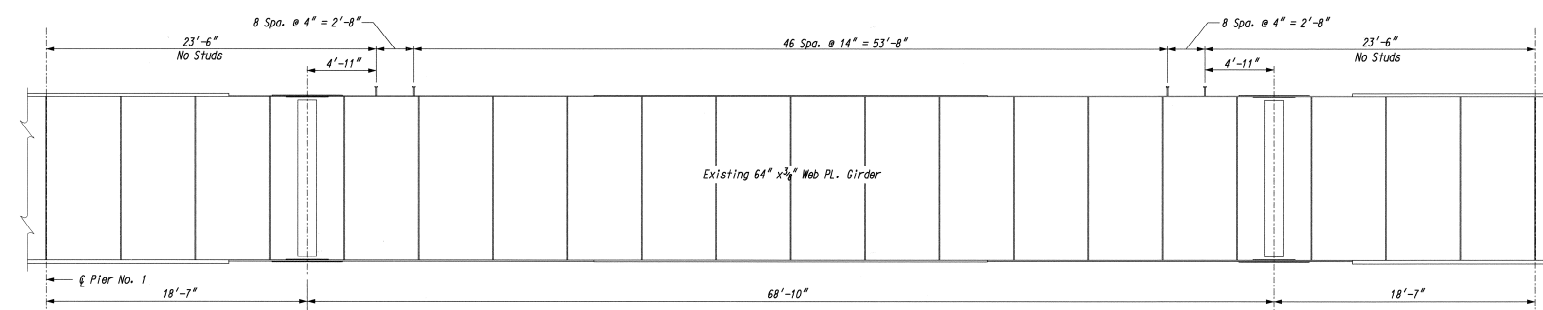
DESIGN PREPARED AND SUBMITTED BY  
BOW HAZELLET & ERDAL

DATE: 2-28-98  
BY: NUB  
CHECKED BY: DOE  
DATE: 5-98

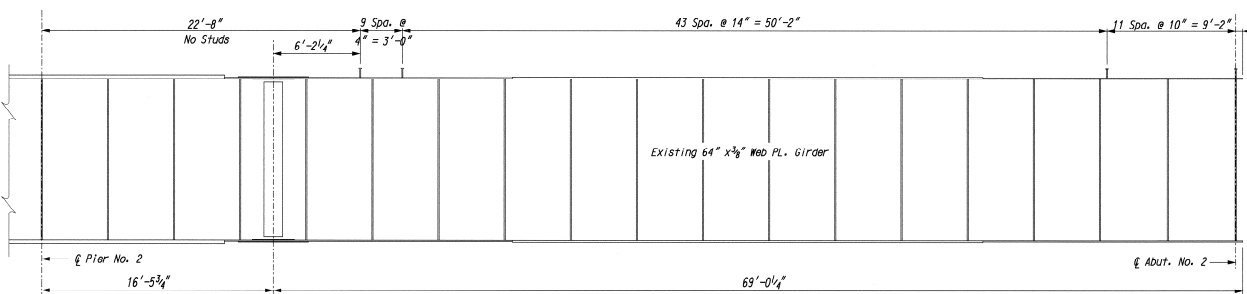
DESIGNED BY: NUB  
CHECKED BY: DOE  
DATE: 2-28-98  
BY: NUB



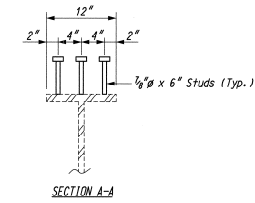
SPAN 1



SPAN 2



SPAN 3



STUD DETAILS

BRIDGE REPAIR & DECK REPLACEMENT SHEET 44

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
**BARREN**

US 31 E OVER SKAGGS CREEK

STATION ROAD  
P.F. PROJECT NO.

CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO. DRAWING NO. 24412

UPDATE DATE  
LETTING DATE

CLASS REVIEWED AND SUBMITTED BY  
BRW HAZELT & EDELL  
DATE

DATE

DATE

DATE

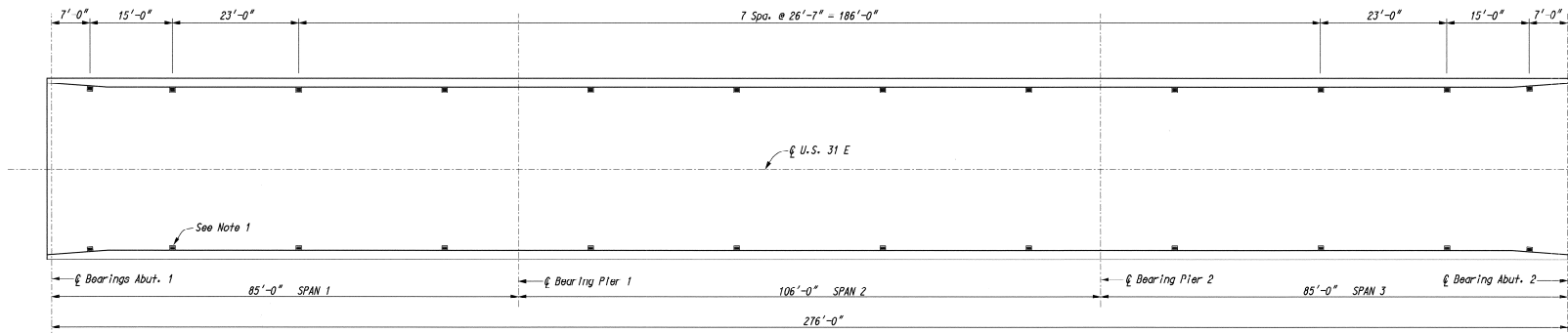
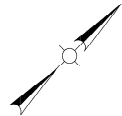
DATE

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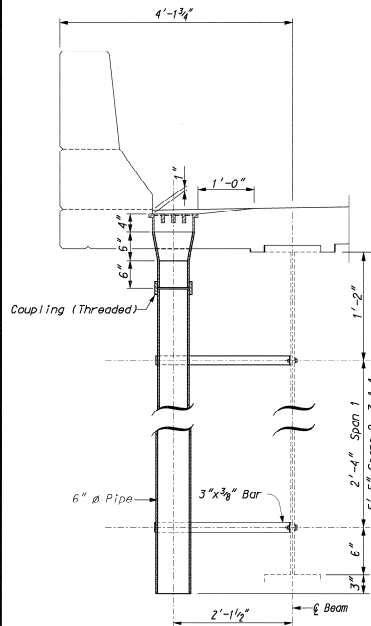
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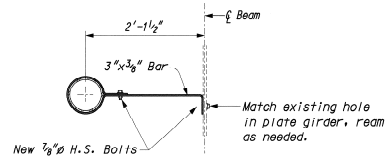


**DRAINAGE PLAN**

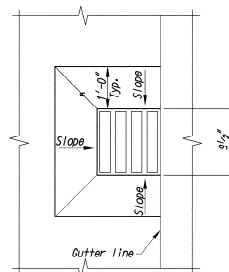
1. Drain castings shall be placed parallel to gutter line in the barrier transition and positioned where the existing holes in the plate girder can be used. Contractor shall field measure in order to provide the appropriate strap length.
2. Drain spacings are from the original contract plans. The Contractor shall locate the existing drain locations in the field and place the new drains at those locations.



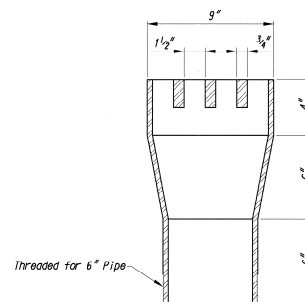
**SECTION AT TRUSS SPAN DECK DRAINS**



**SECTION A-A**



**SECTION B-B**



**DETAIL A**  
(24 required)  
(60 Lbs. Ea.)

**DRAINAGE DETAILS**

BRIDGE REPAIR & DECK REPLACEMENT SHEET 45

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
**BARREN**

US 31 E OVER SKAGGS CREEK

STATION ROAD PROJECT NO.

CONSTRUCTION PROJECT NO. MAINTENANCE PROJECT NO. DRAWING NO.

24412



UPDATE DATE  
LETTING DATE

DESIGN PREPARED AND SUBMITTED BY  
BRW HAZLET & EDOL  
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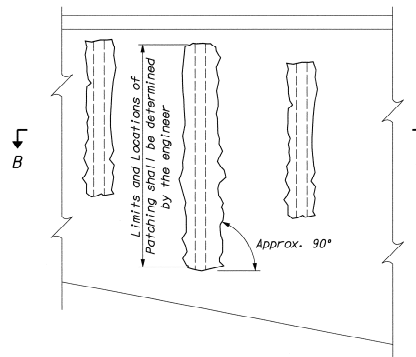
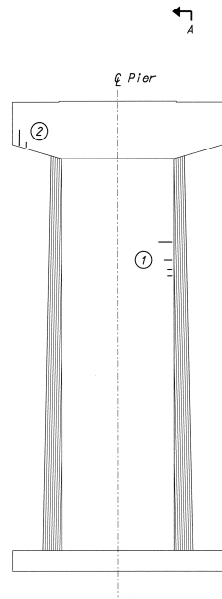
DATE

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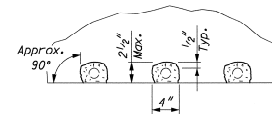
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**DETAIL 'B'**  
Showing elevation view of  
Mortar Patch at pier.



**SECTION B-B**

**REPAIR @ PIER NO. 1 & 2**

- ① Pier 1 - North Face (2 sq. ft. spalled area)
- ② Pier 2 - South Face (3 sq. ft. spalled area)

**CONCRETE PATCHING AT SUBSTRUCTURES**

1. Repairing of spalled areas along existing exposed reinforcement shall consist of the following:
  - A) Chip out deteriorated concrete to the limits indicated in Detail "B"
  - B) Clean chipped out areas to remove all loose rust and concrete
  - C) Apply an approved epoxy resin mortar patch material in accordance with Section 510 of the Standard Specifications
2. The Contractor shall be responsible for repairing areas of patch failure due to shrinkage and/or debonding of patches from existing concrete. There will be no additional compensation allowed for repairing or replacement of failed patches.
3. The unit price bid for this item shall include all materials and labor for removing unsound concrete, placing patch mortar, and incidentals necessary to complete the work.
4. Limits and locations of patching shall be determined by the Engineer.
5. Estimated repair quantities are based on observations and measurements from a 1997 inspection.

| ITEM              | UNIT    | QUANTITY |
|-------------------|---------|----------|
| Concrete Patching | Sq. Ft. | 5        |

**PIER NO. 1 & 2 - REPAIRS**

BRIDGE REPAIR & DECK REPLACEMENT SHEET 47

**COMMONWEALTH OF KENTUCKY**  
DEPARTMENT OF HIGHWAYS

HANKFORD  
COUNTIES OF

**BARREN**

US 31 E OVER SKAGGS CREEK

| STATION                  | ROAD                    | P.E. PROJECT NO. | DRAWING NO. |
|--------------------------|-------------------------|------------------|-------------|
| CONSTRUCTION PROJECT NO. | MAINTENANCE PROJECT NO. |                  | 24412       |



UPDATE DATE  
LETTING DATE

DESIGN PREPARED AND SUBMITTED BY  
BRIAN HAZELT & ASSOCIATES  
INC.

DATE  
2-28-2018

BY  
BHA

DATE  
2-28-2018

BY  
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| CONSTRUCTION ELEVATIONS |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|-------------------------|-------------|-------------|--------------|-------------|---------|--------------|-------------|---------|--------------|-------------|---------|--------------|-------------|---------|--------------|--------------|
| LOCATION                | LEFT FASCIA | LEFT GUTTER | GIRDER 1     |             |         | GIRDER 2     |             |         | GIRDER 3     |             |         | GIRDER 4     |             |         | RIGHT GUTTER | RIGHT FASCIA |
|                         |             |             | CONST. ELEV. | TOP OF BEAM | DIM "X" | CONST. ELEV. | TOP OF BEAM | DIM "X" | CONST. ELEV. | TOP OF BEAM | DIM "X" | CONST. ELEV. | TOP OF BEAM | DIM "X" |              |              |
| Line A                  | 597.015     | 597.047     | 597.099      |             |         | 597.772      |             |         | 597.772      |             |         | 597.099      |             |         | 597.047      | 597.015      |
| B                       | 597.023     | 597.055     | 597.107      |             |         | 597.780      |             |         | 597.780      |             |         | 597.107      |             |         | 597.055      | 597.023      |
| Screed Line 1           | 597.053     | 597.087     | 597.139      |             |         | 597.312      |             |         | 597.312      |             |         | 597.139      |             |         | 597.087      | 597.053      |
| 2                       | 597.151     | 597.185     | 597.237      |             |         | 597.410      |             |         | 597.410      |             |         | 597.237      |             |         | 597.185      | 597.151      |
| 3                       | 597.246     | 597.280     | 597.332      |             |         | 597.505      |             |         | 597.505      |             |         | 597.332      |             |         | 597.280      | 597.246      |
| 4                       | 597.335     | 597.369     | 597.421      |             |         | 597.594      |             |         | 597.594      |             |         | 597.421      |             |         | 597.369      | 597.335      |
| 5                       | 597.419     | 597.453     | 597.505      |             |         | 597.678      |             |         | 597.678      |             |         | 597.505      |             |         | 597.453      | 597.419      |
| 6                       | 597.497     | 597.531     | 597.583      |             |         | 597.756      |             |         | 597.756      |             |         | 597.583      |             |         | 597.531      | 597.497      |
| 7                       | 597.569     | 597.603     | 597.655      |             |         | 597.828      |             |         | 597.828      |             |         | 597.655      |             |         | 597.603      | 597.569      |
| 8                       | 597.636     | 597.670     | 597.722      |             |         | 597.895      |             |         | 597.895      |             |         | 597.722      |             |         | 597.670      | 597.636      |
| 9                       | 597.703     | 597.737     | 597.789      |             |         | 597.962      |             |         | 597.962      |             |         | 597.789      |             |         | 597.737      | 597.703      |
| 10                      | 597.771     | 597.805     | 597.857      |             |         | 598.032      |             |         | 598.032      |             |         | 597.857      |             |         | 597.805      | 597.771      |
| 11                      | 597.847     | 597.881     | 597.933      |             |         | 598.107      |             |         | 598.107      |             |         | 597.933      |             |         | 597.881      | 597.847      |
| Line C                  | 597.870     | 597.905     | 597.957      |             |         | 598.130      |             |         | 598.130      |             |         | 597.957      |             |         | 597.905      | 597.870      |
| Screed Line 12          | 597.881     | 597.915     | 597.967      |             |         | 598.140      |             |         | 598.140      |             |         | 597.967      |             |         | 597.915      | 597.881      |
| 13                      | 597.965     | 597.999     | 598.051      |             |         | 598.224      |             |         | 598.224      |             |         | 598.051      |             |         | 597.999      | 597.965      |
| 14                      | 598.057     | 598.091     | 598.143      |             |         | 598.316      |             |         | 598.316      |             |         | 598.143      |             |         | 598.091      | 598.057      |
| 15                      | 598.150     | 598.184     | 598.236      |             |         | 598.409      |             |         | 598.409      |             |         | 598.236      |             |         | 598.184      | 598.150      |
| 16                      | 598.244     | 598.278     | 598.330      |             |         | 598.503      |             |         | 598.503      |             |         | 598.330      |             |         | 598.278      | 598.244      |
| 17                      | 598.333     | 598.367     | 598.419      |             |         | 598.592      |             |         | 598.592      |             |         | 598.419      |             |         | 598.367      | 598.333      |
| 18                      | 598.420     | 598.454     | 598.506      |             |         | 598.679      |             |         | 598.679      |             |         | 598.506      |             |         | 598.454      | 598.420      |
| 19                      | 598.500     | 598.534     | 598.586      |             |         | 598.759      |             |         | 598.759      |             |         | 598.586      |             |         | 598.534      | 598.500      |
| 20                      | 598.573     | 598.607     | 598.659      |             |         | 598.832      |             |         | 598.832      |             |         | 598.659      |             |         | 598.607      | 598.573      |
| 21                      | 598.644     | 598.678     | 598.730      |             |         | 598.903      |             |         | 598.903      |             |         | 598.730      |             |         | 598.678      | 598.644      |
| 22                      | 598.710     | 598.744     | 598.796      |             |         | 598.969      |             |         | 598.969      |             |         | 598.796      |             |         | 598.744      | 598.710      |
| 23                      | 598.777     | 598.811     | 598.863      |             |         | 599.036      |             |         | 599.036      |             |         | 598.863      |             |         | 598.811      | 598.777      |
| 24                      | 598.845     | 598.879     | 598.931      |             |         | 599.104      |             |         | 599.104      |             |         | 598.931      |             |         | 598.879      | 598.845      |
| 25                      | 598.921     | 598.955     | 599.007      |             |         | 599.160      |             |         | 599.160      |             |         | 599.007      |             |         | 598.955      | 598.921      |
| Line D                  | 598.930     | 598.965     | 599.017      |             |         | 599.190      |             |         | 599.190      |             |         | 599.017      |             |         | 598.965      | 598.930      |
| Screed Line 26          | 598.957     | 598.991     | 599.043      |             |         | 599.216      |             |         | 599.216      |             |         | 599.043      |             |         | 598.991      | 598.957      |
| 27                      | 599.043     | 599.077     | 599.129      |             |         | 599.302      |             |         | 599.302      |             |         | 599.129      |             |         | 599.077      | 599.043      |
| 28                      | 599.133     | 599.167     | 599.219      |             |         | 599.392      |             |         | 599.392      |             |         | 599.219      |             |         | 599.167      | 599.133      |
| 29                      | 599.226     | 599.260     | 599.312      |             |         | 599.485      |             |         | 599.485      |             |         | 599.312      |             |         | 599.260      | 599.226      |
| 30                      | 599.319     | 599.353     | 599.405      |             |         | 599.578      |             |         | 599.578      |             |         | 599.405      |             |         | 599.353      | 599.319      |
| 31                      | 599.407     | 599.441     | 599.493      |             |         | 599.666      |             |         | 599.666      |             |         | 599.493      |             |         | 599.441      | 599.407      |
| 32                      | 599.489     | 599.523     | 599.575      |             |         | 599.748      |             |         | 599.748      |             |         | 599.575      |             |         | 599.523      | 599.489      |
| 33                      | 599.565     | 599.599     | 599.651      |             |         | 599.824      |             |         | 599.824      |             |         | 599.651      |             |         | 599.599      | 599.565      |
| 34                      | 599.636     | 599.670     | 599.722      |             |         | 599.895      |             |         | 599.895      |             |         | 599.722      |             |         | 599.670      | 599.636      |
| 35                      | 599.701     | 599.735     | 599.787      |             |         | 599.960      |             |         | 599.960      |             |         | 599.787      |             |         | 599.735      | 599.701      |
| 36                      | 599.763     | 599.797     | 599.849      |             |         | 600.022      |             |         | 600.022      |             |         | 599.849      |             |         | 599.797      | 599.763      |
| Line E                  | 599.780     | 599.815     | 599.867      |             |         | 600.040      |             |         | 600.040      |             |         | 599.867      |             |         | 599.815      | 599.780      |
| F                       | 599.789     | 599.824     | 599.876      |             |         | 600.049      |             |         | 600.049      |             |         | 599.876      |             |         | 599.824      | 599.789      |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
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|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |
|                         |             |             |              |             |         |              |             |         |              |             |         |              |             |         |              |              |

| TABLE OF ELEVATIONS FOR CONTROL OF SLAB THICKNESS |                       |                          |                         |
|---|-----------------------|--------------------------|-------------------------|
| CONTROL POINT                                     | TOP OF SLAB ELEVATION | BOTTOM OF SLAB ELEVATION | COMPUTED SLAB THICKNESS |
| a   | 597.323               |                          |                         |
| b   | 597.497               |                          |                         |
| c   | 597.323               |                          |                         |
| d   | 597.508               |                          |                         |
| e   | 597.681               |                          |                         |
| f   | 597.508               |                          |                         |
| g   | 597.669               |                          |                         |
| h   | 597.843               |                          |                         |
| i   | 597.669               |                          |                         |
| j   | 597.875               |                          |                         |
| k   | 598.049               |                          |                         |
| l   | 597.875               |                          |                         |
| m   | 598.020               |                          |                         |
| n   | 598.193               |                          |                         |
| o   | 598.020               |                          |                         |
| p   | 598.137               |                          |                         |
| q   | 598.311               |                          |                         |
| r   | 598.137               |                          |                         |
| s   | 598.322               |                          |                         |
| t   | 598.496               |                          |                         |
| u   | 598.322               |                          |                         |
| v   | 598.506               |                          |                         |
| w   | 598.679               |                          |                         |
| x   | 598.506               |                          |                         |
| y   | 598.746               |                          |                         |
| z   | 598.919               |                          |                         |
| a1  | 598.746               |                          |                         |
| b1  | 598.882               |                          |                         |
| c1  | 599.056               |                          |                         |
| d1  | 598.882               |                          |                         |
| e1  | 599.017               |                          |                         |
| f1  | 599.191               |                          |                         |
| g1  | 599.017               |                          |                         |
| h1  | 599.130               |                          |                         |
| i1  | 599.303               |                          |                         |
| j1  | 599.130               |                          |                         |
| k1  | 599.305               |                          |                         |
| l1  | 599.479               |                          |                         |
| m1  | 599.305               |                          |                         |
| n1  | 599.579               |                          |                         |
| o1  | 599.753               |                          |                         |
| p1  | 599.579               |                          |                         |
| q1  | 599.738               |                          |                         |
| r1  | 599.911               |                          |                         |
| s1  | 599.738               |                          |                         |
| t1  | 599.873               |                          |                         |
| u1  | 600.047               |                          |                         |
| v1  | 599.873               |                          |                         |

SCREED ELEVATIONS

BRIDGE REPAIR & DECK REPLACEMENT SHEET 49

COMMONWEALTH OF KENTUCKY  
DEPARTMENT OF HIGHWAYS

FRANKFORT  
COUNTIES OF  
BARREN

US 31 E OVER SKAGGS CREEK

STATION  
CONSTRUCTION PROJECT NO.  
ROAD  
P.E. PROJECT NO.  
MAINTENANCE PROJECT NO.  
DRAWING NO.  
24412